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AGRICULTURAL POLICY REFORM PROGRAM**

**MVE UNIT
APRP**

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**THE QUALITY
AND GRADING
OF EGYPTIAN
COTTON**

German Technical Cooperation

**Project Office: Midan Nadi El-Said, Dokki-Cairo
Mailing Address: GTZ Project Administration Services
4d El Gezira St., 11211 Zamalek-Cairo**



Ronald Krenz
Abt Associates

William Breginc
Galal El Rifai
GTZ

Adel Mostafa
Nabil El-Sentrecy
Mohamed
Messelhi
EQI

Abt Associates Inc.

Prime Contractor:
Abt Associates Inc.

Subcontractors:
Environmental Quality International,
Management Systems International

USAID Award: 263-C-00-97-00003-00

Project Office: 15th Floor, 7 Nadi El Seid Street, Dokki, Cairo
Telephones: (202) 337-0357, 337-0592, 335-8879

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LIST OF ACRONYMS

| | |
|-------|--|
| ARC | Agricultural Research Center, Ministry of Agriculture and Land Reclamation |
| APCP | Agricultural Production and Credit Project |
| APRP | Agricultural Policy Reform Program |
| CRI | Cotton Research Institute (ARC, MALR) |
| CASC | Central Administration for Seed Certification and Testing |
| CASP | Central Administration for Seed Production |
| CIF | Cotton Improvement Fund |
| CSPP | Cotton Sector Promotion Program |
| CATGO | Cotton Arbitration and Testing General Organization |
| ELS | Extra long staple cotton |
| GOE | Government of Egypt |
| GTZ | German technical assistance program (Deutsche Gesellschaft Fur Technische Zusammenarbeit) |
| HVI | High volume instrument (for testing cotton lint) |
| ITMF | International Textile Manufacturers Federation |
| LS | Long staple cotton |
| MALR | Ministry for Agriculture and Land Reclamation |
| MTS | Ministry of Trade and Supply |
| MLS | Medium long staple cotton |
| MVE | Monitoring, Verification and Evaluation Unit (APRP) |
| PBDAC | Principal Bank for Development and Agricultural Credit |
| TCF | Textile Consolidation Fund |
| USDA | United States Department of Agriculture |
| USAID | United States Agency for International Development |

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PREFACE

The MVE Unit of APRP was very pleased to collaborate for this study with the Egyptian German Cotton Sector Promotion Program (CSPP). Through this collaboration, the team that was assembled to undertake the work was broader and more experienced than either unit could have fielded individually.

The effort was truly a collaboration among the members of the team, the sponsoring units, and most importantly, the government officials and private sector cotton experts who gave their time and shared valuable insights and information about the factors affecting the final quality of Egyptian cotton.

It is the hope of all who worked on the study or supported it that continuing improvements in the cotton grading and quality control systems in Egypt will preserve the unique properties of Egyptian cotton for all who wish to enjoy them.

EXECUTIVE SUMMARY

The objectives of this study were to assess the cotton quality and grading systems in Egypt and to recommend improvements.

Findings:

- High-quality cotton has some measurable characteristics, some un-measurable characteristics. Quality also depends upon the absence of trash and contaminants.
- Foreign spinners consider Egyptian cotton to have excellent spinning qualities, but they warn that the presence of contaminants, especially synthetic fibers, endanger this good reputation.
- Foreign spinners prefer a simple, numeric grading system for Egyptian cotton.
- Other countries that produce ELS cotton have much simpler grading terminology and much fewer grades.
- By the 1990's the grades actually received by the lint cotton produced in Egypt had collapsed into a narrow range. This was due to the nationalization of production and marketing systems and the subsequent lack of attention to quality and to the incentives needed to produce quality cotton.
- The collapse of grades over time implies that all of the cotton is put 'in the same sack.' thus, the good cotton is mixed with the poor cotton, which lowers the overall spinning value of the cotton.
- The premiums paid for high grades of seed cotton in Egypt have, for many years, been small, and the penalties for poor cotton have also been small, thus providing small incentives to produce and trade high-quality cotton.
- The current campaigns by the GOE to eliminate contaminants are helpful but have not eliminated contamination. These campaigns must be coupled with better market price premiums for clean cotton and market penalties for contamination.
- Many private seed cotton buyers in the 1998-99 season were avoiding low-value cotton. Continuation of this practice will widen the quality price premiums.
- The large number of cotton producers in Egypt complicates the problems of the MALR in extension efforts to train producers in improved production and marketing techniques.
- It appears that CATGO is understaffed and its cotton classers are overburdened by volume and, hence, lack sufficient time to do the best possible job of grading, particularly at the sales rings.
- CATGO now performs HVI tests on all lots of lint cotton.
- Ginners lack the flexibility to increase their profits by improving the quality of cotton in ginning.
- The GOE has recently ordered the installation of trash analyzers at gins.
- The traditional *farfarra* methods of blending cotton for export may be adding, instead of removing, contamination.
- Repressing of bales for export at Alexandria is becoming expensive, but alternatives are being found, such as more selective buying of seed cotton and seed cotton blending, and baling for export at the gins.
- Most people in the trade feel that free markets and free market pricing will improve quality price

premiums and hence will improve cotton quality.

Recommendations:

- To improve cotton quality, the GOE should continue to play its critical role in breeding, seed certification and production, grading, and inspections at sales rings and gins.
- The GOE needs to play a larger role in the future in providing timely market information to producers, traders and exporters.
- The Egyptian cotton grading system should be simplified.
- Exporters should consider supplementing the grading system by providing buyers with reliable, standardized, HVI results.
- CATGO should distribute the results of HVI tests on the current cotton crop as widely and quickly as possible during the marketing season.
- CATGO graders need to spend more time grading seed cotton. This will result in more accurate grading and will impress upon farmers the importance of quality.
- The GOE should sustain and enhance its campaigns with producers at sales rings and at gins to control contamination in cotton.
- The GOE should attempt to remove synthetic sacks from the agricultural scene to keep synthetic fibers from contaminating the cotton.
- The MALR should expand its extension efforts to educate producers in production, harvesting, post-harvest handling, and marketing techniques that improve cotton quality.
- The MALR should continue its efforts to improve seed quality through the expansion of seed delinting and treatment, through continued reduction in the number of varieties grown, and increases in bonuses paid to producers for seed multiplication.
- The GOE should consider offering a special bonus for the production of planting seed from the first picking.
- Gins should increase efforts to clean seed cotton with manual methods and should supplement manual cleaning of seed cotton with new mechanical technology to reduce contamination prior to ginning.
- The GOE should continue moving toward free markets and privatization of publicly owned companies in the cotton subsector. This includes trading, ginning, spinning, weaving and ready-made garment firms. Quality premiums at the spinning and weaving level will result in higher quality premiums for seed cotton.
- The GOE should make a commitment to stop setting ginning charges once the privatization of gins is complete.
- In the long run, the price premiums for grades, and differentials between varieties, should be set in a free, competitive market, not by the Government.

1. INTRODUCTION

1.1 Background

Cotton subsector participants often state that the quality of Egyptian cotton has deteriorated over time. A variety of causes are mentioned. The views differ depending upon the participant.

Some claim that the grading system has deteriorated under the supervision of CATGO. It is sometimes stated that the graders, or cotton classers, are poorly trained, or that they are not as well experienced as those in some bygone era. Some say that the need for grading every sack of seed cotton is an overwhelming task and clogs the system. Others report that the bulk of the cotton that is exported is at a low grade.

Some say that the grading system, including the number of grades and the terminology is far too complex and also may overwhelm the system. Others blame the current problems on the nationalization of the cotton subsector that began in about 1962-63 and contend that all will be well as soon as the entire subsector again becomes a free market. Perhaps liberalization will solve all the problems of the subsector but in case it doesn't, or if liberalization is several years still in coming, then what can the GOE do in the mean time to help to preserve, maintain, and improve the international reputation of Egyptian cotton?.

Regardless of the speed or final outcome of liberalization of the cotton markets, the GOE will continue to have an impact on the cotton subsector. The MALR will continue to play a large role in cotton breeding. All cotton producing countries, even those that are considered to have a completely free market, have regulations about seed production and the varieties that can be planted. Most governments also operate the grading and testing organizations, they provide official statistics on the crop, and they operate the market news services. The entire Egyptian cotton subsector will only operate well when the public sector and the private sector are each making their unique and valuable contributions.

1.2 Objectives

This report presents the results of a special study conducted jointly by APRP/MVE and CSPP to examine cotton quality and grading. The objectives of the study were to diagnose the cotton grading system and to determine if the quality of cotton produced in Egypt had declined over time, and if so, has it been due to current Egyptian grading procedures, or other aspects of the marketing mechanism. The study also required a comparison of the grading system in Egypt with that used in other countries producing ELS cotton. The objectives of the study included:

- a. Examine data on the quality of Egyptian cotton over an extended period,
- b. Conduct interviews with foreign importers of Egyptian cotton to get their appraisals of the quality of Egyptian cotton and the Egyptian grading system,
- c. Interview domestic traders, gin managers, spinners, and weavers to obtain their appraisals

of the quality of Egyptian cotton and their opinion of the cotton grading system,

- d. Submit recommendations on how to improve the Egyptian cotton grading system or the marketing system to improve the quality of Egyptian cotton.

1.3 Study Procedures

To gain information for this study, the study team conducted interviews and gathered data from a large number of domestic participants in the cotton subsector. The team made visits to producers, sales rings, gins, spinning mills, weaving mills, to private and public traders and to government officials concerned with the subsector (See Annex I for a list of those interviewed). Data were also gathered from public sources, particularly CATGO, ALCOTEXA, and MALR.

A major assignment in this study was to interview foreign importers of Egyptian cotton. The sample included some thirty mills using Egyptian cotton in various markets including Japan, East Asia, and Europe. These interviews were conducted to learn of their appraisals of the spinnability of Egyptian cotton, their opinions regarding the Egyptian grading system, and regarding the pricing of Egyptian cotton, particularly on the price differentials between grades (See Annex II for the questionnaire used for this assignment, and Annex III for a list of foreign spinners who responded to this questionnaire and annex IV for a summary of the responses).

An additional major assignment was an examination of the grading systems now being used in other major ELS producing countries. This assignment was intended to provide lessons for the improvement of the Egyptian system. A summary of these results is presented in Annex VII.

2. COTTON QUALITY

What is meant by cotton quality? Cotton has value because it can be spun into yarn, which can be woven into fabric, which in turn can be made into clothing. High quality lint cotton is that cotton which will produce high quality yarn, fabric, and high quality consumer products.

High quality cotton lint can be described as having a number of physical properties. Some of these properties are measurable while others are not. High quality lint cotton also implies the absence of certain harmful substances.

2.1 Measurable Properties

The desirable measurable properties of high quality ELS cotton include the following items: long staple length, uniformity in length of the fibers, fiber strength, fineness, maturity, and elasticity, (or elongation) and for some cottons also the color. Egyptian cotton has a particularly good reputation in regard to fiber length and strength. The foreign spinners interviewed for this study generally gave Egyptian cotton high marks in regard to quality (Annex III). "The spinnability of Egyptian cotton is considered excellent. Its features are its strength and lustrous fiber, smooth running on the machines." Egyptian cotton also has a reputation with foreign spinners for its homogeneity.

Fiber length, which is perhaps the most well known property of cotton lint, is measured in inches or millimeters. ELS lint is defined as that cotton with a minimum length of 1-3/8 inches and LS has a staple length at least 1-1/4 inches. Egypt also produces MLS cotton that measures at least 1-1/8 inches.

Egyptian cotton is also known for its fiber strength. Egyptian cotton often measures 15 % stronger than other cotton. Tables 1-3 present data on the physical properties of three of Egypt's major cotton varieties, (Giza-70, Giza-86, and Giza-83) during the most recent seven cotton market seasons. These data are presented primarily to illustrate what physical characteristics of cotton can be quantified. The reader can also observe, by comparing the data in these three tables, the salient differences in these three major varieties.

2.2 Unmeasurable Properties

Properties of cotton lint that are not measurable include items like style, silkiness, and luster. These are the major items the cotton classer is considering when he is classing, or grading, the cotton. Trash content also plays a large role in the determination of the grade.

Table 1: Physical Properties of Egyptian Cotton (Giza 70), Seasons 1991/92 - 1997/98

| Season | 91/92 | 92/93 | 93/94 | 94/95 | 95/96 | 96/97 | 97/98 |
|--|-------|-------|-------|-------|-------|-------|-------|
| Physical Properties | | | | | | | |
| <u>Length</u> | | | | | | | |
| Length at 2.5% Span length | 35.8 | 36.1 | 36.1 | 35.9 | 35.0 | 35.0 | 35.3 |
| Average Length (mm) | 32.0 | 32.0 | 32.2 | 31.9 | 31.1 | 31.3 | 32.1 |
| Uniformity (%) | 89 | 89 | 89 | 89 | 89 | 89 | 91 |
| Uniformity (Ratio) | 50 | 50 | 50 | 50 | 50 | 50 | 51 |
| <u>Strength</u> | | | | | | | |
| Pressley Index (pound/mg) | 11.0 | 11.1 | 11.0 | 11.1 | 11.5 | 11.3 | 11.4 |
| Tensile Str. (1000 pound/inch ²) | 118.8 | 119.9 | 118.8 | 119.9 | 124.2 | 122.8 | 122.8 |
| Tenacity (gm/tex) | 32.6 | 33.8 | 33.9 | 33.7 | 34.0 | 34.2 | 34.6 |
| Elongation (%) | 5.4 | 5.7 | 5.7 | 5.4 | 5.6 | 5.5 | 5.3 |
| <u>Fineness</u> | | | | | | | |
| Micronaire (microgram/inch) | 3.70 | 3.90 | 3.70 | 3.60 | 4.00 | 3.73 | 3.88 |
| Militex (10-5mg/cm) | 141 | 138 | 135 | 132 | 149 | 147 | 153 |
| <u>Maturity</u> | | | | | | | |
| % of mature fibers | 79 | 79 | 79 | 76 | 77 | 74 | 76 |
| Ratio | 0.89 | 0.89 | 0.89 | 0.85 | 0.86 | 0.83 | 0.85 |
| <u>Trash</u> | | | | | | | |
| Trash (% by weight) | 4.2 | 3.6 | 4.4 | 4.6 | 4.2 | 3.6 | 3.3 |
| Purity (% by weight) | 95.8 | 96.4 | 95.6 | 95.4 | 95.8 | 96.4 | 96.7 |
| <u>Spin Strength</u> | | | | | | | |
| Lea product test | 2956 | 2958 | 2972 | 2963 | 2959 | 2884 | |

Source : CATGO, Alexandria, 1998.

Table 2: Physical Properties of Egyptian Cotton (Giza 86), Seasons 1991/92 - 1997/98

| Season | 1994/95 | 1995/96 | 1996/97 | 1997/98 |
|--|---------|---------|---------|---------|
| Physical Properties | | | | |
| <u>Length</u> | | | | |
| Length at 2.5% Span length | 33.0 | 32.8 | 33.1 | 33.4 |
| Average Length (mm) | 28.5 | 28.3 | 28.9 | 29.0 |
| Uniformity (%) | 86 | 86 | 87 | 87 |
| Uniformity (Ratio) | 49 | 49 | 49 | 49 |
| <u>Strength</u> | | | | |
| Pressley Index (pound/mg) | 10.9 | 11.1 | 11.0 | 11.1 |
| Tensile Str. (1000 pound/inch ²) | 117.709 | 119.871 | 118.682 | 119.743 |
| Tenacity (gm/tex) | 31.5 | 31.8 | 32.7 | 32.9 |
| Elongation (%) | 5.3 | 5.0 | 5.5 | 6.3 |
| <u>Fineness</u> | | | | |
| Micronaire (microgram/inch) | 3.25 | 4.14 | 3.88 | 4.0 |
| Militex (10-5mg/cm) | 128 | 149 | 153 | 159 |
| <u>Maturity</u> | | | | |
| % of mature fibers | 71 | 80 | 75 | 76 |
| Ratio | 0.80 | 0.90 | 0.84 | 0.85 |
| <u>Trash</u> | | | | |
| Trash (% by weight) | 4.2 | 2.7 | 3.2 | 3.0 |
| Purity (% by weight) | 95.8 | 97.3 | 96.8 | 97.0 |
| <u>Spin Strength</u> | | | | |
| Lea product test | 2426 | | 2726 | |

Source : CATGO, Alexandria, 1998.

Table 3: Physical Properties of Egyptian Cotton (Giza 83), Seasons 1991/92 - 1997/98

| Season | 91/92 | 92/93 | 93/94 | 94/95 | 95/96 | 96/97 | 97/98 |
|---|-------|-------|-------|-------|-------|-------|-------|
| Physical Properties | | | | | | | |
| <u>Length</u> | | | | | | | |
| Length at 2.5% Span length | 30.5 | 30.3 | 31 | 31.1 | 29.6 | 30.2 | 30.2 |
| Average Length (mm) | 25.5 | 25.4 | 26.2 | 26.4 | 24.9 | 24.9 | 25.7 |
| Uniformity (%) | 84 | 84 | 85 | 85 | 84 | 82 | 85 |
| Uniformity (Ratio) | 48 | 48 | 48 | 48 | 48 | 48 | 49 |
| <u>Strength</u> | | | | | | | |
| Pressley Index (pound/mg) | 9.1 | 8.9 | 8.8 | 9.0 | 8.7 | 8.9 | 9.1 |
| Tensile Str. (1000pound/inch ²) | 98.25 | 96.09 | 95.01 | 97.17 | 96.93 | 96.09 | 97.82 |
| Tenacity (gm/tex) | 25.1 | 25.4 | 23.9 | 26.2 | 25.3 | 24.6 | 26.6 |
| Elongation (%) | 6.5 | 6.6 | 6.7 | 7.1 | 8.2 | 7.4 | 6.7 |
| <u>Fineness</u> | | | | | | | |
| Micronaire (microgram/inch) | 3.15 | 2.90 | 3.40 | 3.50 | 3.58 | 3.73 | 4.07 |
| Militex (10-5mg/cm) | 133 | 124 | 140 | 140 | 144 | 152 | 169 |
| <u>Maturity</u> | | | | | | | |
| % of mature fibers | 68 | 66 | 72 | 73 | 71 | 73 | 73 |
| Ratio | 0.76 | 0.74 | 0.81 | 0.82 | 0.80 | 0.82 | 0.82 |
| <u>Trash</u> | | | | | | | |
| Trash (% by weight) | 5.8 | 5.2 | 8.5 | 7.4 | 10.3 | 4.8 | 5.7 |
| Purity (% by weight) | 94.2 | 94.8 | 91.5 | 92.6 | 89.7 | 95.2 | 94.3 |
| <u>Spin Strength</u> | | | | | | | |
| Lea product test | 2134 | 2120 | 2113 | 2165 | 2065 | 2170 | |

Source : CATGO, Alexandria, 1998.

2.3 Trash

High quality cotton is also characterized by the absence of unwanted materials in the lint. These consist of two major categories, trash and foreign matter (contaminants). Trash is mainly plant leaves. Egyptian cotton is all hand picked. Hand picking is difficult to perform without including small pieces of plant material, primarily leaves. As shown in Table 4 the amount of trash present in Egyptian cotton varies mainly by variety and of course somewhat from year to year. Both of these factors are related to weather or climatic conditions.

Varieties Giza-80 and Giza-83, which are produced in Upper Egypt, consistently register higher levels of trash content. Cotton is picked in Upper Egypt mainly during August and September when temperatures are very warm and the plant material is very dry. Increasing the number of pickings could reduce the trash content. If the cotton was picked earlier in the season the plant material would not be as dry and brittle and, hence, less plant material would be included with the lint. Farmers could also pick only in the morning when the cotton lint is dry enough for picking but the plant leaves are not as dry and brittle. If picking early in the morning produces cotton with too much humidity, the cotton could be laid out to air-dry before sacking for sale.

Table 4: Trash Content of Egyptian Cotton by Variety, 1992-98
(percentage by weight)

| Year | Giza 45 | Giza 70 | Giza 76 | Giza 77 | Giza 86 | Giza 75 | Giza 85 | Giza 80 | Giza 83 |
|---------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 1991-92 | 4.8 | 4.2 | 3.8 | 4.3 | --- | 4.4 | --- | 7.0 | 5.8 |
| 1992-93 | 4.0 | 3.6 | 3.6 | 3.8 | --- | 3.6 | --- | 6.7 | 5.2 |
| 1993-94 | 5.2 | 4.4 | 4.5 | 3.8 | --- | 4.1 | 4.7 | 7.2 | 8.5 |
| 1994-95 | 6.4 | 4.6 | 4.8 | 5.9 | 4.2 | 5.1 | 5.5 | 6.9 | 7.4 |
| 1995-96 | 6.9 | 4.2 | 3.8 | 3.7 | 2.7 | 3.7 | 3.4 | 8.6 | 10.3 |
| 1996-97 | 4.6 | 3.6 | 3.9 | 3.8 | 3.2 | 3.2 | 3.3 | 5.4 | 4.8 |
| 1997-98 | 5.7 | 4.1 | 3.9 | 3.6 | 3.2 | 3.1 | 3.3 | 5.1 | 4.8 |

Source: CATGO, Alexandria, 1998.

Domestic spinners utilize most of the lint from varieties G-80 and G-83. Their major complaint regarding the trash in these varieties is the cost aspect. Trash can be removed but trash in the lint increases the cost of the lint. When they buy lint of these varieties they are receiving a lot of trash instead of lint. Secondly, this trash can be removed by mechanical or hand methods, but at additional cost.

Lint buyers expect to find some trash in the lint cotton. Higher than normal trash content mainly indicates that the buyer has paid for cotton and received less than he expected for his money. Cotton with 10 percent trash is worth at least ten percent less than clean cotton. Removal of trash is possible, but only at a cost. Thus, cotton with 10 percent trash is worth less than 90 percent of that of clean cotton. Shipping trash is also an economic waste.

In September 1998 the Minister of Trade and Supply issued orders that Shirley Analyzers were to be installed in all of the gins so that trash content tests could be made of every lot of lint cotton. It will be some time before this equipment is available and the necessary training has been completed. Perhaps the system will be fully operational by the start of the 1999-2000 season. This will be valuable information for lint buyers, both foreign and domestic. This is an important step in quality improvement made by the GOE that must be commended.

2.4 Contamination

A much more serious type of foreign matter found in cotton lint are those items that are called contaminants. The ITMF conducts a worldwide survey of spinners every two years to determine the extent of these contaminants. The major items listed as contaminants in these surveys are "fabrics and strings made of woven plastics, plastic film, jute/hessian, and cotton, organic matter (leaves, feathers, paper, leather); inorganic matter (sand, dust, rust, metal wire) and chemicals (grease, oil, rubber, tar, stamp color)".

The most serious problems are the synthetic fibers. Most metal items can be removed by magnets or by gravity. Dirt and dust can also be largely be removed by beaters and air movement. As reported above, most plant material can also be removed in this manner.

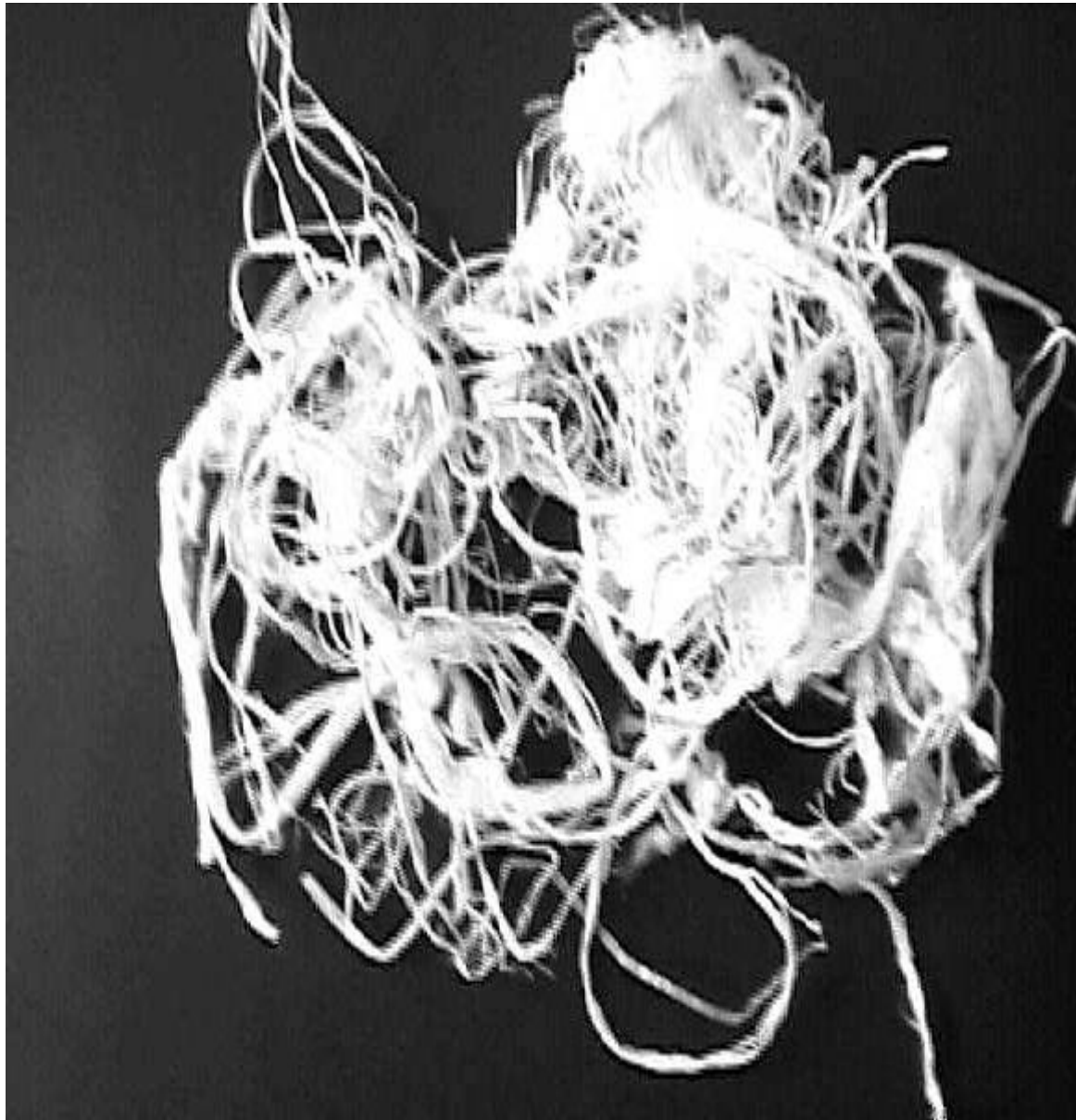
Many foreign spinners have installed optical scanners in their spinning mills to remove contamination, but these systems can only remove colored materials; these systems cannot remove materials that are the same color as the cotton lint. These systems are blind to things such as polypropylene, which is the reason the laminated polypropylene sacks are called 'the king of the contaminants'.¹ An example of this type of contamination is shown in picture No. 1.

These optical scanners can remove 70-80 percent of contaminants but the remaining 30% are the 'invisible items', which the scanners cannot see, that remain in the lint as it goes to the spinning mill. These items are mostly synthetic fibers, which become ground into tiny pieces and cause weak spots in the yarn. Furthermore, when the final fabric is dyed, these synthetic fibers do not accept the dye and show up as tiny specks in beautiful cloth, thus ruining its value.

Figure 1 presents a relative comparison of contamination by producing regions of the world. The percentages given in Figure 1 represent the percent of the respondents (spinners) who reported "either moderate or serious contamination with 16 named contaminants".² These results do not quantify the amount of contaminants but give a relative ranking of the producing regions in terms of contamination. This figure shows that 24% of the respondents reported moderate or serious problems with contamination of Egyptian cotton in 1995. *Only India and Pakistan received poorer rankings with all other producing countries receiving better marks than Egypt.*

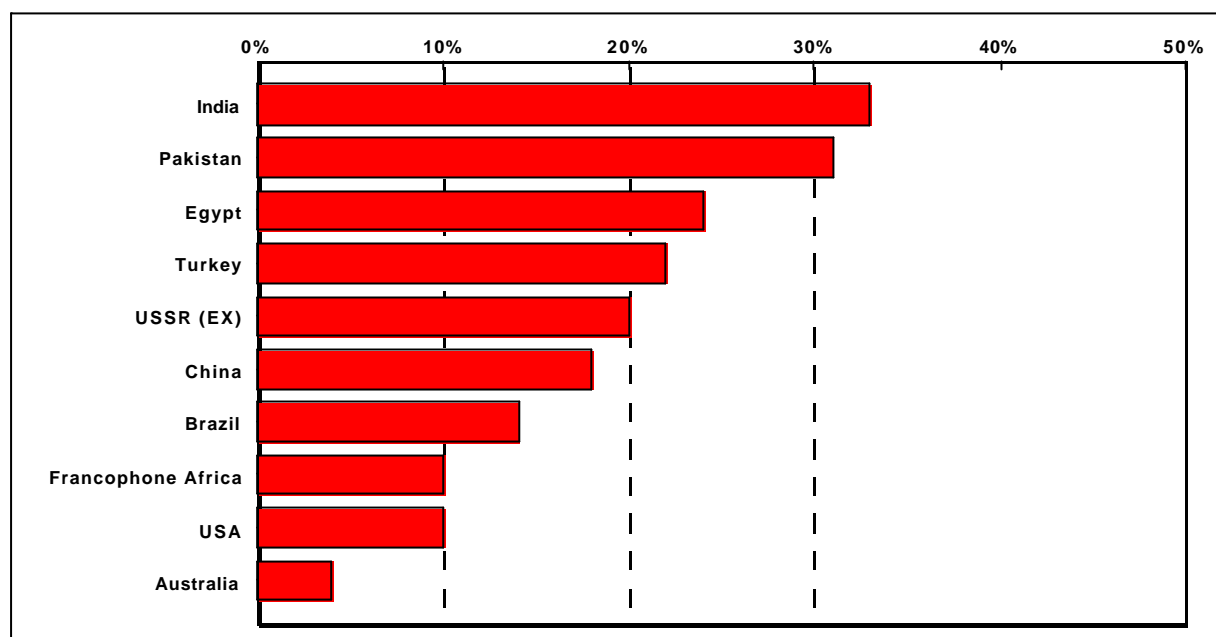
¹ "The Long Term Outlook for Egypt and World Extra-long Staple and Long Staple Cotton Demand" By Outlook Consulting Limited for CSPP/GTZ, October 1997, See Section 4- Technology Driven Demand.

² H.M. Strolz, "ITMF Cotton Contamination Survey 1995", in proceedings of International Cotton Conference, Bremen, 1996. Pages 37-40.



Picture No. 1: Polypropylene Strings Found in Egyptian Lint Cotton by European Spinners.

Figure 1: Spinners' Reports of Cotton Contamination (Moderate to Serious) by Region,



1995

Source: Proceedings of "International Cotton Conference- Bremen, 1996", page 39.

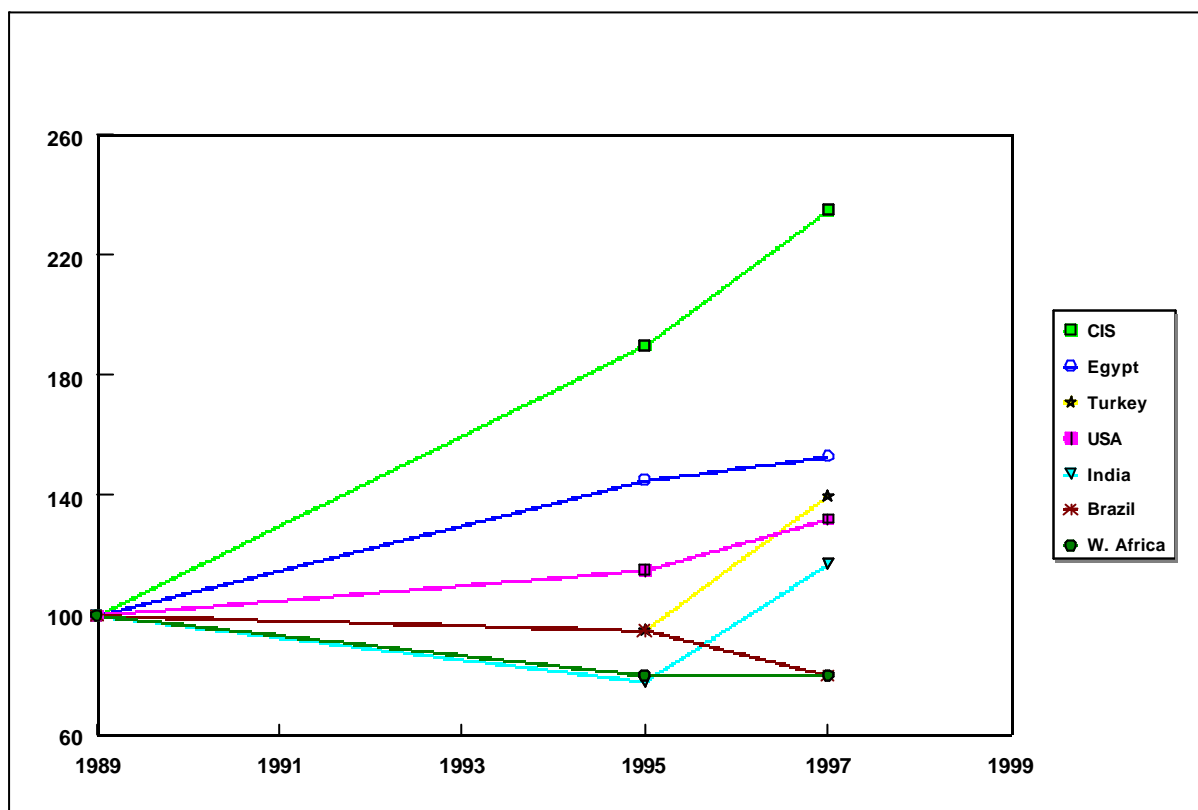
Two years later, in 1997, the results from a similar survey gave even more discouraging results. Figure 2 shows that the situation in Egypt had gotten worse³. The relative number of spinners who reported moderate or serious contamination in Egyptian cotton had increased from 24 percent to 26 percent.

What is also discouraging about the survey results is that they show a wide diversity in contamination between producing regions. This means that contamination is not necessary. It is not universal. Some regions, such as Australia and Zimbabwe produce cotton with a much lower incidence of contaminants. Even more importantly, between 1995 and 1997 several regions, such as Brazil and West Africa, reduced the contaminants in their cotton.

The foreign spinners interviewed for this study consider contamination in Egyptian cotton to be a very serious problem, and they consider it the responsibility of the producer country to eliminate the contamination (see Annex IV). Furthermore, these foreign buyers feel that it is the responsibility of Egypt to install whatever modern technology is needed in the gins, or elsewhere, to remove these contaminants. *Some spinners now refuse to buy Egyptian cotton because of the presence of these contaminants.*

³H.M. Strolz, "ITMF Cotton Contamination Survey 197", in proceedings of International Cotton Conference, Bremen, 1998. Page 21-25.

Figure 2: Spinner's Reports Changes in Cotton Contamination (Moderate to Serious) by Region, 1997 Relative to 1989



Source: Proceedings of "International Cotton Conference- Bremen, 1998", page 24.

The study team visited a wide variety of firms and locations (see Annex I). The team visited sales rings, gins, spinning mills, and weaving mills. The team found large pieces of polypropylene used as covers of the ends of sacks of seed cotton delivered to sales rings. It found sisal and polypropylene ties lying on the ground in several sales rings and it found sisal and polypropylene strings used to tie many of the seed cotton sacks at one sales ring and also at a gin. It found sand and dirt on the floor under the lint cotton in an opening room at a spinning mill. Several times they observed people in the fields picking cotton into plastic and polypropylene sacks. All of these types of materials would, if not removed, damage the final products made from this cotton.

2.5 Other Factors Affecting Quality

In addition to the items listed above, cotton lint quality is affected by a large number of factors. Some of these factors are technical, and some are economic, or are strongly affected by economic variables, such as price premiums. Some of these factors deal with production while some deal with ginning and marketing. The list includes the following:

- Breeding (Genetics)
- Seed Quality
- Soil Characteristics
- Weather
- Pests
- Cultural Practices
- Quality Price Premiums
- Grading Systems
- Ginning Methods
- Transportation and Storage Methods
- Blending Methods
- Testing Procedures

Some but not all of these items can be dealt with in this report.

3. THE EGYPTIAN MARKETING AND GRADING SYSTEM FOR COTTON

3.1 The Need for Grading

Grading of a commodity is not needed when the buyer and seller can face each other with the commodity present for examination. The buyer can examine the commodity for sale and determine visually the characteristics of it and can evaluate its value. If the buyer is experienced, he will not need to know the grade of the commodity. He can examine the commodity and see the quality himself.

Grading is a necessary part of modern markets where the buyer cannot examine the item or commodity for sale and must rely on a standard description of it. Of particular concern to this study are the export sales of Egyptian cotton. In export sales the buyer must rely on the information provided to him by sellers.

A grading system must be operated by a disinterested third party. The grader must not be influenced by either the buyer or the seller. Technically, a private sector firm can operate a grading system but official grading of most commodities in most countries is performed by a public agency. This public agency must be beyond the influence of any buyer or seller to remain objective. Its commodity graders must also be well qualified and experienced. This is especially true in regard to cotton where grading can be considered as much of an art as a science.

The grade depends upon such items as color, brightness, trash content, and the presence or absence of dead or immature fibers. Cotton grades in any country are not described in words. The grade is established by a sample of cotton, kept in a box under glass, which visually describes the grade. These 'boxes' are kept in secure locations to avoid any tampering.

The grade assigned must be reliable. The grade must be specific enough to tell the buyer what he is buying when he knows the grade. Thus, a system of arbitration must be in place so that if the buyer disagrees with the grade upon delivery he has some recourse for his satisfaction.

3.2 The Current Marketing System for Seed Cotton

This brief description of the current Egyptian cotton marketing system is provided to serve as background for the discussion of cotton grading and quality.

Egyptian cotton production occurs each year on between 500,000 and one million farms. Due to the rotation system, some small farmers grow cotton one year and other farmers grow cotton other years. Thus, as many as 1.5 to 2 million Egyptian farmers produce cotton during a 2-3 year period. The average Egyptian cotton farmer may produce only about 7 kentars of cotton on one feddan. A very large cotton producer in Egypt is one that produces 300 kentars. Such a total output implies an area of about 50 feddans. Such a large amount of cotton is rarely found in Egypt and usually results from combining the output of several members of a large family, or if a large farmer buys

cotton from his smaller neighbors. But even 300 kentars (15 tons) is too small an amount to isolate in the ginning process. Such an amount would be less than one day's throughput of most gins. Thus, grading of the seed cotton (prior to ginning) is necessary to determine a value of the cotton.

This fragmentation of production has not always existed in Egypt but it is a result of the land reform programs of the 1960's. Prior to that time cotton was grown on large plantations with the use of large amounts of hired labor. During that bygone era, which some senior cotton industry people can still remember, cotton production and marketing decisions were made by many fewer, large producers who experienced large benefits from marketing quality cotton.

The current fragmented production sector has a large impact on the marketing system, especially on the costs of collecting the cotton. During the period when all cotton production was required to be sold to the GOE (1963-93) a system of collection centers, or rings, were set up which were managed by co-operatives. In recent years these rings were put under the administration of PBDAC. These rings have numbered about 800-1000 rings each serving about 1,000 feddans of cotton.⁴ With a yield of 7 kentars⁵ of seed cotton per feddan each ring will likely handle 6-7000 kentars of seed cotton.

Throughout Egypt the variety which farmers are permitted to grow is determined by the MALR. The MALR draws a variety map each year before the planting season and provides seed of only one variety in each area. The variety areas follow legal boundaries such as administrative districts or Governorate boundaries.

During the 1998-99 marketing season a total of 835 marketing rings were established and managed by PBDAC. In 1998-99 all of the cotton delivered to a ring was designated to be purchased by only one company. In this season private trading companies were given the first choice of which rings they wished to buy, but with the proviso that they must purchase all of the cotton delivered to that ring and must pay the official prices. Such a marketing system does not encourage the buying of high-grade cotton, but eight private companies chose to purchase cotton in this manner. All of the ginning companies also purchased some cotton through these rings. The remaining rings were divided among the 6 public cotton-trading companies.

In 1998-99 private buyers were permitted to buy seed cotton directly from farmers or to establish their own private sales rings where farmers could bring their cotton to sell. Private buyers were also permitted to buy seed cotton delivered to the gins, to resell seed cotton to other private traders, to gin at any gin which would provide the service, and to sell lint cotton to domestic or foreign spinners or traders.

⁴ A feddan is equal to approximately 4200 square meters or 0.42 hectares, or 1.038 acres.

⁵ A kantar of seed cotton equals 157.5 KGs. With a ginning outturn of 100 percent a seed kantar would produce 100 KG of cotton seed, 50 KG of lint cotton, and 7.5 KG of scarto, waste, dust, etc. Ginning outturns of greater than 100 percent are common which means that more than 50 KG of lint are produced per seed kantar, i.e. an outturn of 110 percent means 55 KG of lint were obtained from one kantar of seed cotton.

A set of official price tables had been prepared for the use of the sales rings for the 1998-99 season. This set of prices was established on the basis of the export prices announced at the start of the export season by ALCOTEXA. Beginning with these export prices, which are expressed for international trading purposes in U.S. cents/lb., adjustments were made to determine the seed cotton prices.⁶

These official prices essentially became floor prices for sales of seed cotton at the sales rings. Private exporters are required to register all export contracts with ALCOTEXA, however it is doubtful whether ALCOTEXA can enforce the minimum export prices on private traders.

Private traders buying from farmers sometimes paid farmers prior to official grading by CATGO. In this case they took the risk of getting it graded as 'mixed cotton'. Other traders brought seed cotton to the gins for official grading and ginning outturn tests before agreeing on a price to pay the farmer. Most private traders used the official pricing table as their guide. Many traders paid the same prices, or slightly lower, but induced farmers to sell to them by paying immediately, by also paying transport costs, and by elimination of the ring marketing costs of about LE 3/kentar. Some cotton producers sold to private buyers to try to avoid deductions by PBDAC for loan payments or cotton pest control.

Several private traders who were buying directly from farmers reported that they purchased only higher grades of cotton. They refused to purchase any average or lower grades. Other private traders reported that they did not want to purchase cotton through the rings because they would be forced to purchase all low-grade cotton delivered there. Some traders also indicated that the grade premiums should not be fixed for all grades and varieties. The price differentials for seed cotton in 1998-99 were set at LE 6/Kentar for each 1/8th grade for the entire price table for all varieties and at all grade levels *regardless of the relative value of each cotton variety*.

Managers of the PBDAC sales rings in Upper Egypt reported that most farmers picked cotton only one time this season. In Lower Egypt most, but not all, cotton was picked twice and some was picked three times. When farmers pick more than once they usually keep the cotton from each picking in separate sacks for selling at the rings but this cotton may or may not be kept separate at the ring or at the gins.

In 1998-99 seed cotton could not be transported without a permit from a local MALR official. This regulation was designed to eliminate the mixing of varieties but it caused difficulties for legitimate private traders to move cotton they had purchased.

3.3 The Current Egyptian Cotton Grading System

⁶ The season opening ALCOTEXA export prices were as follows: (in U.S.cents/lb.) G-45= 220, G-87= 130, G-76= 120, G-70 = 117, G-77 & G-88 = 112, G-86 = 100, G-89&75= 94, G-85=92, G-80 = 88, G-83= 86. Seed cotton prices = export price - 12 cents/lb. fobbing charges, multiply by 3.75 to convert from US cents/lbto LE/lint kentar, subtract LE 55 for marketing charges and add LE 62.5 for the value of byproducts. This calculation gives the value of seed cotton with a ginning outturn of 100 %.

The official grading of cotton in Egypt is the responsibility of CATGO. CATGO has offices in 17 governorates that produce cotton. They also maintain an office at each gin. Their 275 permanent classers are located at the governorate or gin offices. Each classer usually has 2 assistants. CATGO also uses 60-70 people from MOA during the marketing season to assist with grading at the rings, but not at the gins.

3.3.1 Grading at the Sales Rings

The PBDAC rings follow a weekly schedule, which differed slightly with the rings. Each CATGO grader is usually assigned 6 rings. The CATGO grader is expected to visit each of the 6 rings assigned to him one day per week. He would class, or grade, all of the seed cotton delivered to the ring since his last visit. These graders indicated that their main responsibility at the ring was to check the variety of the cotton, check for contamination, grade the seed cotton, and take a sample from the dominate grade to send to a gin to test for ginning outturn. One ginning outturn test was performed each week at each sales ring. The CATGO charge for grading at the ring is LE 0.90/seed kantar of which the farmer is charged LE 0.40 and the buyer paying the remaining LE 0.50. This charge also covers the weekly ginning outturn tests.

Every CATGO grader we interviewed mentioned that checking the variety of the seed cotton was his first and major responsibility. Each sales ring handles only one variety. With ten varieties of cotton in Egypt and each with a different official price some incentives exist for farmers, or others, to transfer low value cotton to the rings which handle the high value varieties. Some CATGO graders reported that there have been many cases of mixed cotton in Upper Egypt in recent years.⁷

The CATGO grader examines and grades every sack of seed cotton. As stated above, grading of seed cotton is necessary in Egypt because the cotton is sold before it is ginned. Cotton experts throughout the system constantly reminded us that the classing of seed cotton was primarily an estimation of what the cotton would grade after ginning. They stressed that many factors can change the grade during ginning, such as the care of the cotton in transport and storage, the adjustment of the gin stands, and the amount of trash removed by the gin through cleaning prior to ginning and during ginning.

Normally, several hundred new sacks of seed cotton have been delivered to the ring since the classer's last visit and, thus, the classer may need to grade 700 sacks per day. The CATGO classers said that grading 700 sacks/day was a manageable number. Before the CATGO classer arrives at the ring the sacks of seed cotton have been arranged in rows, weighed, and the weight, name of the producer, and a serial number have been marked on the sack.

⁷ When seed cotton is classed as 'mixed' at the gin it is confiscated and set aside to be ginned at the end of the season after all other cotton is ginned. It then can be sold only as 'mixed cotton', which is given the lowest price on the price table, i.e. the lowest value variety, the lowest grade, and the lowest ginning outturn.

When the classer begins his task an assistant cuts a hole in the side of each jute sack for the classer to pull out a few handfuls of cotton. The classer lays the cotton out and feels it and examines it visually. He determines a grade and reports it to his assistant. The grade is marked on the sack and recorded on a report form along with the weight, serial number and owners name.⁸ With this reporting system any contamination later found in this sack can be traced back to the producer. The grader also makes a decision, based on his judgement, as to whether the cotton is of the proper humidity (maximum of 8.5 %) or above that limit.

The study team found that CATGO graders were well respected by producers and traders. No complaints were noted regarding the ability or integrity of the CATGO graders.

However, the study team received the impression that CATGO graders have an extremely large task to perform at the rings. A survey conducted during the 1997-98 cotton season revealed that the average ring received 674 sacks of cotton per week.⁹ On the other hand, in the same survey, 50 CATGO graders reported that they spent an average of only 1.7 hours per day at the ring grading cotton. This implies that a grader spends only about 9 seconds grading each sack. This gives him very little time to evaluate the cotton in terms of variety, to determine the grade, and to check for contamination. It is our opinion that graders should be encouraged to put forth more effort in grading.

CATGO graders reported that in cases where farmers challenge a grade at the ring a committee of CATGO graders would come to the ring and arbitrate the matter. An extra fee is charged for this service. (See Annex VI for a list of CATGO charges.)

At one ring the study team were shown a computer printout produced by PBDAC. It contained one line of print per producer. It gave the total weight of seed cotton, the grade, the ginning outturn, the total gross value and all deductions. Deductions included the marketing charges and deductions for high humidity cotton. This sheet was used for making payment to the farmer at the local PBDAC village bank

3.3.2 Grading at the Gins

CATGO considers the grading at the gins as their main responsibility. CATGO maintains a permanent office at every gin. The major responsibilities of a CATGO classer stationed at a gin, in respect to seed cotton, are to: a) check the variety of the incoming seed cotton, b) recheck the grade, c) check for contamination, and d) sort cotton by grade for ginning.

⁸ The CATGO graders have an official set of symbols that are used to designate the grade and that are printed on each sack after grading. These symbols are presented in Annex IV.

⁹ Monitoring, Verification, and Evaluation survey, 1997-98. Cotton Rings Survey, forthcoming

The owner of the cotton makes the final decision as to what seed cotton and how wide a class of cotton to blend together before ginning. ALCOTEXA regulations permit blending of seed cotton within one whole grade, the range to be specified by the owner. (For example, the owner is allowed to mix all seed cotton graded between Good and Fully Good or between Good - 1/4 and Fully Good - 1/4).

After ginning, the bales of lint cotton are put into lots as designated by the owner. The average size of lots of lint cotton is estimated at 30 bales (about 8 kantar/bale). A CATGO grader selects a sample of each lot of lint cotton. This sample is taken from 10 percent of the bales in each lot and sent to the CATGO laboratories in Semouha, in Alexandria, for official classing, for HVI, and humidity tests.

3.3.3 HVI Testing

Tables 1-3 above presented data on the physical properties of three varieties of cotton which were obtained from HVI tests. "HVI" means high volume instrumentation. HVI equipment is designed to process a large volume of cotton samples in a short length of time. CATGO reported that they can process 600 samples during each labor shift and during the busy season they can, if necessary, process 1200 sample in two shifts, or within one day. The tests that can be run with HVI equipment differs between units but in general, this equipment is available to test color, percentage of trash, staple length, length uniformity, staple strength, micronaire (fineness).

CATGO has been using this equipment in recent years to process samples from every lot of lint cotton as it is baled at the gin. A total of 35-40,000 lots of lint cotton result per season and tests are made of each of these lots. One line of HVI testing equipment can process 40,000 samples in 67 eight-hour shifts. Thus, one HVI line is adequate for testing all of the lint cotton in Egypt as quickly as it is ginned.

The HVI test results are tabulated by CATGO at the end of each season for historical comparisons of the cotton crops. These data are also provided to the domestic cotton traders and spinners. Such data are useful to domestic spinners in their blending rooms and to export traders in preparing their private types for export and in farfarra for export.

Since CATGO performs these HVI tests as the samples are submitted from the gins, data become available throughout the season on the quality of the crop. These data are specific to each lot but CATGO could determine averages of all lots for each variety and grade, which could be made available to the trade during the marketing season. Such data are equally as valuable to the trade as are data on cotton yield and production.

A total of three HVI systems are in place in Egypt. These are the systems in CATGO, the TCF, and the CRI. The unit in CRI is used exclusively for research purposes. The unit in TCF is used for testing lint samples submitted by the domestic spinning mills.

In general, in order to obtain international uniformity of HVI result it is essential that

international calibration standards are followed. Such calibration standards have been developed by the USDA and by the ITMF.¹⁰ Such calibration must be done on a regular basis. In addition, the atmospheric conditions of the laboratories where this equipment is located must be maintained at specified temperature and relative humidity levels. Obviously such equipment must be operated according to the manufacturers specifications and only by skilled and conscientious operators.

Sampling procedures are also very important. Samples must be of the proper size, 100-170 grams; they must be taken properly and brought up to the same humidity and temperature conditions of the laboratory before testing.

The USA grading system uses what is known as the "green card". This is a card attached to each bale that reports the HVI test results *for that bale* on staple length, strength and micronaire.¹¹

HVI is not a substitute for grading but a very useful supplement to grading. These data allow the spinner to select and blend the lots or bales of lint cotton in a manner to meet his spinning needs. Several Egyptian export traders provide HVI data to their customers as a complimentary service. This is to be commended, and it obviously is good for promoting business.

Careful analysis of HVI data over time can also indicate the geographic areas of the country which produce cotton of particular characteristics. These could assist in the determination of the variety map each year in Egypt. HVI data can also be utilized to check the grading ability of the classers.

Several exporters interviewed for this study reported that they have HVI tests performed on their export lots and provide their customers with these test results as a courtesy to them. No exporters reported that they guarantee these test results, nor do they sell by specification. ALCOTEXA requires export selling by type at the present time.

Many of the foreign spinners interviewed for this study (Annex III) requested that HVI certificates be provided with export lots. They pointed out that suppliers in the USA and Australia already provide this service. But they also caution that correct calibration of the HVI equipment is necessary.

¹⁰ See "Guidelines for HVI Testing", USDA, Agricultural Marketing Service, Cotton Programs, Memphis, Tennessee, August 1998, and "HVI User guide, ITMF standard Procedures for HVI Calibration and Operation for Testing Cotton", ITMF, Zurich, Switzerland, April 1997.

¹¹ M.E. Atienza, "Classification of Cotton in the United States", M.E. Cotton div. AMS, USDA, Washington D.C. in proceedings of: *International Cotton Conference- Bremen, 1996*. pages 23-28.

3.4 Egyptian Cotton Grades

The English established the terminology used in the cotton grading system in Egypt. The original set of cotton grades in Egypt included six full grades with half grades as follows:

Extra
 FG/Ex
Fully Good
 G/FG
Good
 FGF/G
Fully Good Fair
 GF/FGF
Good Fair
 FF/GF
Fully Fair

Below the grade of Fully Fair there is a category of cotton called "low mixed cotton". This designation is not truly a grade but is used to describe cotton that fails to make a grade. In addition to the above grades, cotton is classed by 1/4, 1/8 and even 1/16 grades. Thus, as many as 81 possible grades are available (5 full grades x 16, plus 1). The original set of grades was defined in a manner so that the distribution of grades should be centered at a grade of Good/Fully Good or Fully Good-1/4.

Needless to say, most of these 81 possible grades are seldom used. In the 1998-99 season ALCOTEXA has set the minimum export prices for each 1/16 grade for a range of grades from Fully Good at the top down to Good + 1/4 for Giza 45 and only down to Good +3/8 for all other varieties. This range is covering only 5/8 of one full grade for all varieties except G-45.

Standard official boxes illustrating each half grade for each variety are available in the CATGO offices. Thus a total of eleven boxes are prepared for each variety. Each governorate has a set of standard boxes for the varieties grown in that governorate. These official grade boxes are prepared by CATGO and must be approved by the panel of experts that constitute the appeals board. These boxes are prepared each year for the use of the CATGO graders who work at the gins and sales rings. Official standard boxes have never been available outside of Egypt since all exports are by private type. Hence the exporters may be the only ones who provide some type of sample of their private types to their prospective buyers.

Since grading is primarily a visual exercise and cleanliness is a major factor in grading, ginning should, by removing trash, be able to improve the grade. It is normally expected that cotton in Egypt should move up 1/4 grade during ginning. For example, seed cotton that was graded as Good should attain a grade of Good + 1/4 as lint cotton. Expert ginning may even increase the grade more than 1/4 grade.

3.5 Cotton Grading in Other Countries

A special survey was conducted of the cotton grading systems in other countries producing ELS cotton. This survey covered US Pima, Israel Pima, Central Asia CIS, Sudan, Peru, India and Egypt (See Annex VII). The central feature of all of these systems is that the number of grades is very small, from 3 to 5, except for the systems in Egypt and the Sudan. As shown above, the Egyptian system contains a very large number of grades and sub-grades although few of these are in common use (See Chapter Four). The Sudanese system is more complex than that of the other countries but not as complex as the Egyptian system. Under the US system, approximately 90 percent of the Pima crop is marketed as grades 2 or 3.

Most of the grading systems in other countries use numerical terminology, such as 'grades No. 1-6.' Such a simple terminology minimizes confusion and contributes to understanding. It should be noted that it is not only the foreign buyers who are confused by the grading terminology, but also the Egyptian producers. In many producer surveys most farmers could not report the grade which had been placed on their cotton. The farmers knew that the marks meant that their cotton had been graded, but few producers could give the grade their cotton had received.¹² Simplification of the Egyptian system seems in order.

¹² See results of cotton producer surveys reported in the APCP Tranche reports V-VII.

4. CHANGE IN GRADES OF COTTON AND PRICE PREMIUMS

A statement often heard in the cotton trade is that the average grade of cotton currently produced in Egypt is much lower than in earlier years. These remarks come from older members of the trade who are generally comparing the current era with the pre-nationalization period, before 1964. These remarks prompted an examination of the available data on the quantity of cotton produced by grade in Egypt over an extended period of time. Data were not readily available for all marketing seasons, including the critical period during the 1960's when nationalization occurred.

4.1 Collapse of Grades

The data presented in Table 5 reveal that not only was a greater share of the cotton classed in the high grades in this earlier period but there also was a greater share of the cotton that was graded in the very low grades. During the eight marketing seasons from 1952-60 roughly one third of the cotton production (34.8%) was graded between Good and Good/fully Good (G/FG), another third (34.4%) was above the grade G/FG and about a third (30.8%) fell below the grade of Good. In the current era (1990-98) almost all of the cotton (90.3 %) falls within the range of Good to G/FG with only about 4-5 % at either end of the scale.

These data do not confirm that the average grade has declined, only that the grades have collapsed into a narrower range. We currently have a distribution of grades which is very narrow and peaked whereas the earlier distribution was wider and flatter. It is true that currently there is very little cotton that receives a high grade, but we also see very little cotton at the low grades.

However, the reason for this change, or a full explanation of what caused this change in grades is not readily apparent. There are several possible explanations. One possibility is that the cotton produced in Egypt has become more uniform in grade and there is no cotton now being produced that should be graded at the extreme grades. Few members of the trade would accept this explanation.

A second possibility is that the cotton classers are now poorly trained or inexperienced and class all cotton in the mid-range grades because they do not have the ability or knowledge to do otherwise. Some members of the trade feel that the cotton classers of the pre-nationalization era were much more experienced than the classers of today. Some feel that the classers now are overwhelmed by the need to grade every sack of seed cotton, but few would call the CATGO classers of today 'poorly trained'.¹³ Most traders, both public and private, feel that the CATGO classers of today are doing a good job.

¹³ CATGO was founded in 1965 for the purpose of grading seed cotton. Prior to that time all cotton graders were employed only to settle disagreements in the cotton lint spot market.

Table 5: Change in Grades of Egyptian Cotton, 1952-53 to 1997-98

| Market Season | Percent of lint Cotton | | |
|---------------|------------------------|-----------------|---------------------|
| | Above Grade of G/FG | Grade G to G/FG | Below Grade of Good |
| 1952-53 | 29.1 | 23.5 | 47.4 |
| 1953-54 | 37.7 | 25.9 | 36.4 |
| 1954-55 | 31.4 | 28.8 | 39.8 |
| 1955-56 | 25.4 | 32.5 | 42.1 |
| 1956-57 | 36.1 | 29.2 | 34.7 |
| 1957-58 | 37.6 | 31.5 | 30.9 |
| 1958-59 | 36.5 | 54.8 | 8.7 |
| 1959-60 | 41.4 | 51.9 | 6.7 |
| | | | |
| 1980-81 | 4.7 | 90.7 | 4.6 |
| 1981-82 | 3.0 | 90.1 | 6.9 |
| 1982-83 | 1.1 | 88.4 | 10.5 |
| 1983-84 | 1.0 | 87.2 | 11.8 |
| | | | |
| 1988-89 | 2.1 | 92.6 | 5.3 |
| 1989-90 | 4.3 | 93.0 | 2.7 |
| 1990-91 | 5.1 | 88.5 | 6.4 |
| 1991-92 | 12.0 | 84.2 | 3.8 |
| 1992-93 | 17.0 | 80.3 | 2.7 |
| 1993-94 | 4.6 | 91.8 | 3.6 |
| 1994-95 | 1.0 | 91.5 | 7.5 |
| 1995-96 | 3.8 | 93.4 | 2.8 |
| 1996-97 | 2.5 | 95.9 | 1.6 |
| 1997-98 | 0.2 | 92.1 | 7.7 |

Source: CATGO

A third possibility is that at a certain point in time the cotton classers were subjected to pressures to class cotton within a small mid-range of grades. Pressure may have been put on graders to eliminate the low grades so that no one would receive a price much lower than his neighbors. Such a change would also result in a small range in prices received by farmers. Such a change cannot be verified but it could have been a side effect of nationalization.

A fourth possibility is that during some stage, or at some time, producers changed their practices and quit sorting cotton by grade at the farm level and began putting all seed cotton that was produced into the same pile, or sack. This means that the average quality of seed cotton produced did not significantly change but it was marketed in a different manner. It was not separated into the many grades possible but instead was all 'put into the same sack'. This resulted from a reduction in the number of pickings and from the lack of sorting of cotton after picking.

The comments received during interviews conducted for this study lead us to believe that the fourth mentioned explanation is most plausible and would be accepted by most members of the trade. The events which brought about the change in practices included, a) fragmentation of the land holdings resulting from land reform programs, b) the nationalization of cotton marketing, and c) a government program of requiring farmers to grow cotton although prices paid to farmers were well below world market prices.

The fragmentation of land ownership, which occurred in the 1950s and 1960s, put people who previously were farm workers into positions of management of cotton farms. Hence the average skill level of the decision-makers dropped significantly. This problem could be dealt with through training programs, but the resulting large number of producers persists to this day and still hampers the MALR extension programs. As stated elsewhere, farmers are still asking for more information on how to grow and market their cotton.

The low farm prices which existed for about 30 years, accompanied with the government's demand that farmers produce cotton, has led cotton to be known as 'the government crop'. This categorization was often heard before 1994 and implies that farmers grew cotton because they were told to do so, not because they wanted to. The government fixed a crop rotation in every village and told farmers how much cotton they were to plant, which field was to be planted to cotton, and when it had to be planted. The GOE also provided the seed and most other inputs. At the same time, the GOE set up cotton collection centers, now called rings, where farmers had to deliver their cotton. Farmers were paid prices that gave them very low returns to their labor and land, far below what it could earn producing other crops.

But how does this result in a collapse of the grades? One result of these changes was that farmers gave cotton the minimum managerial attention during this period. Yields declined, but also, a major result was in the reduction in number of pickings. The quality of cotton on the plant varies with many factors, including where the bolls are on the plant, but a major variable is the maturity of the fiber. The fibers first grow in length within the boll and then fill out, or mature. Cotton bolls that are picked too early, when they are immature, produce immature fibers. Also, bolls that are allowed to sit on the plant long after they have matured lose value through weathering. A reduction in the number of pickings results in having all cotton put into the same sack and results in the loss of the better quality cotton.

A practice that also is a part of good marketing is the sorting and cleaning of the seed cotton by the producer after picking and before delivery to the collection center. This is a hand operation and of course costs money or the operators' own or family labor. This practice has been largely

eliminated, either from lack of knowledge or because it simply didn't pay to produce better quality cotton.

One thing is certain, if the cotton produced in Egypt now is of the same average grade as before privatization, but is all mixed together, this mixing resulted in a loss of economic value. If it were possible to separate the current crop of cotton into its proper grades, it could be sold at much higher premiums and would give a greater total value than it currently has in the market. Thus, we maintain that the total value of Egyptian cotton would increase only by proper picking and sorting of the seed cotton after picking, even if it is the same cotton that is currently being produced with no other quality improvements.

4.2 Price Premiums for Seed Cotton

The study team maintains that a major reason for this collapse in grades is the collapse in the price premiums paid for seed cotton. Not only were seed cotton prices very low during the period from 1963-93, but the premiums (differentials) paid for better grades were small.

In the 1998-99 season the government set the grade premiums for seed cotton at LE 6/kantar for each difference of 1/8 grade, regardless of the variety or of the position on the grade scale with a ginning outturn of 100 %. This price premium of LE 6.00 per 1/8 of a grade was applied during the 1998-9 season for all varieties and for the entire range of the grade table, from the lowest grade to the highest grade. The GOE has followed the same practices for many years, i.e., the same premiums for the entire table of prices regardless of variety or level of quality. This is an inherent difficulty of administered price schemes.

The GOE has significantly increased these price premiums during the last two seasons. The grade price premiums for seed cotton can be compared over time as follows:

| Season | Price Premium for one full grade¹⁴ (seed cotton, 100 % ginning outturn) (LE/seed kantar) | Price Premium As percent of price For grade good (Giza 70) |
|---------------|--|---|
| 1991-92 | 20.00 | 6.6 |
| 1992-93 | 20.00 | 4.8 |
| 1993/94 | 20.00 | 5.4 |
| 1994-95 | 20.00 | 7.1 |
| 1995-96 | 20.00 | 4.2 |
| 1996-97 | 24.00 | 5.1 |
| 1997-98 | 48.00 | 11.2 |

¹⁴ The definition of a 'full grade' is not clear, even to all researchers in cotton marketing. Here a 'full grade' is defined as a change, for example, from Good to Fully Good. We define Good/Fully Good as a half grade between these two full grades. This clearly illustrates the need for a simpler grading terminology.

1998-99

48.00

12.9

The tables of official GOE prices for seed cotton have shown some increase in grade price premiums since 1996. However, much of the increase has been associated with the general increase in cotton prices. The percentage increase in price that can be obtained from a grade increase has improved during the last two seasons.¹⁵

As shown in Chapter Four, about 90 percent of Egypt's cotton falls within about five-eighths of a full grade (Good up through Good/Fully Good). Thus, in 1998/99 about 90 percent of the cotton of any variety will be classed within a range in grade of about five 1/8ths of a grade. This range in grades gives a range in price of about LE 30/kentar (excluding variations in ginning outturn and bonuses paid for planting seed). This is equivalent to 8 US cents per pound.

For comparison, currently the difference in value of one pound of US Pima cotton by grades is as follows:

| Between grades: | Cents/lb. | Equivalent LE/kentar |
|------------------------|------------------|-----------------------------|
| 1 and 2 | 1/4 | 0.94 |
| 2 and 3 | 2 | 7.48 |
| 3 and 4 | 5 | 18.70 |
| 4 and 5 | 25 | 93.50 |
| 5 and 6 | 14 | 52.34 |

Thus, one pound of US Pima cotton at grade 6 is worth 46 1/4 cents less than one pound of grade No. 1 Pima (LE 175/kentar). Data show that about 90 % of the exports of US Pima are at grades 2 and 3. Thus, the US premiums are also small within this range of good grades, but notice the extremely large penalty that a US producer would suffer if his cotton were to be graded No. 4, 5 or 6. The main point to emphasize here is that the price penalties in Egypt on low grades of seed cotton need to be much greater to discourage production of low quality cotton.

As stated above, these same price premiums per kentar have been established for all varieties. Thus, the grade premiums in 1998-99 are the same for Giza 45, which has a base price for seed cotton at grade Good/Fully Good (100 % ginning outturn) of LE 787/ kentar as for Giza 83 for which the comparable grade is only LE 285/ kentar. A full grade price premium gives a percentage increase of only 6 % for Giza 45 but 16.8 % for Giza 83. Thus, these fixed grade premiums provide less incentive for the producer of the high-grade ELS cotton varieties than they do for the lower value MS varieties. If the GOE desires to set such premiums they should, as a minimum, use some constant percentage in determining the premiums rather than a fixed monetary amount. But clearly, to be meaningful, such grade price differentials must be determined by supply and demand.

¹⁵ Giza-70 was used here only for illustrative purposes. Since the grade premiums are the same for all varieties these percentages would be less for the higher value varieties, such as Giza 45, Giza 76 and Giza 87, and greater for the lower value varieties.

5. COTTON QUALITY ON THE FARM

In Chapter Two a large number of factors were listed that affect cotton quality. Some of the factors listed are technical and are beyond the scope of this study. In this chapter we will deal with factors affecting cotton quality at the producer level and those which are influenced by the marketing system. Here we will discuss seed quality, picking, and post-harvest cleaning of cotton prior to marketing. We will also discuss the role of extension activities of the MALR in regard to these factors and in regard to some other cultural practices.

5.1 Seed Quality¹⁶

Seed production is partially a technical problem and partially an economic problem, because on one hand the decisions regarding the varieties to produce should reflect the demand of the spinners. On the seed production side it involves premiums for seed production and is also related to the number of pickings.

The MALR has sole responsibility for the production of cotton planting seed provided to producers.¹⁷ The quality of the planting seed produced by the MALR is in turn influenced by many factors. Two major factors that we will address here are the number of cotton varieties and the seed planting rates.

5.1.1 Number of Varieties

The principle of producing only one variety of cotton in a region is a principle supported by many agronomists throughout the world. A minimization of varieties is needed to minimize the risk of varietal contamination. Egypt is not the only cotton producing country that concerns itself with this matter. American Pima has only two varieties, Sudan Barakat is only one variety, Peru Pima has only one variety, and Israel Pima has only one variety.

The varietal mixing problem comes from the need for ginning. Seed cotton must be ginned to separate the seed from the lint. The economics of gin design and operation is such that a gin must be utilized to gin a large volume of cotton, which in Egypt means the production of many farmers. In a gin, maintaining separation of seed cotton by lots is difficult, thus resulting in the mixing of seed from different lots of cotton.

¹⁶ This section draws heavily on the report "The Cotton Seed Sub Sector-Performance Assessment and Action plan for Improvement" recently released by CSPP and the Cotton Seed Treatment Project of GTZ, June 1998.

¹⁷ The CRI (Cotton Research Institute) is the agency within MALR that is responsible for cotton breeding and maintenance of the breeder and foundation seed. The CASP has responsibility for multiplication of the registered and certified seed generations. CASC has responsibility for seed certification and testing.

A reduction in the number of varieties will automatically reduce chances of mixing of varieties. There has been a lot of mixing of varieties in recent years, particularly in the first year of the private marketing (1995). Producers and traders were selling cotton 'on the street' and in some areas the cotton was all mixed up. For instance, the CRI would like to have varieties of different color in the same area. The CRI has provided the inspectors with a clear description of the lint of each variety to help them in identifying the varieties.

The production of seed for cotton producers is a complicated process. It involves the production of four generations of seed beginning with breeder seed¹⁸, foundation seed, registered seed and certified seed. A reduction in the number of varieties would allow the MALR to improve its breeding program. The MALR has a limited amount of land on the GOE farms to produce breeder and foundation seed. By reducing the number of varieties they will have more land available for breeding purposes. Currently a shortage of land requires that contract producers produce some foundation seed.

With the methodology now in use, about 200,000 feddans of commercial cotton are used in producing seed. This represents about 25 % of the total cotton area planted in Egypt. With the large amount of land needed for seed production, individual seed producers cannot be selected. Rather, entire governmental districts, which are well within the boundaries of the variety zone, are selected for seed production. We were told that some farmers do not even know that they are producing seed for seed planting for the next season.

The central portion of a seed production area is designated for producing foundation seed, with registered seed being produced in a middle ring and certified seed produced in the outer ring. This procedure is followed to eliminate production of 'off types' through cross pollination with other varieties.¹⁹ In these seed producing areas all of the cotton produced is ginned at designated gins and the seed is purchased by the MALR for processing into certified planting seed for the following season.

A farmer who produces cotton from which planting seed is ginned receives a seed multiplication bonus. This bonus, paid by the CIF, is sometimes LE 5/seed kentar and sometimes LE 10/kentar. This is regarded as an insufficient bonus. In 1997-98 the seed bonus of LE 5 represented only about one percent of the floor price of seed cotton.

¹⁸ Breeder seed is that seed released by the breeder after breeding and selection has been completed. In Egypt there is no long-term storage to keep breeder seed for cotton. Instead a new generation of breeder seed of each variety is produced each year.

¹⁹ Cotton does cross-pollinate to a certain extent. This cross-pollination produces 'off types' if crossing occurs with a different variety and even some 'off-types' if the variety contains a mix of various strains. The production of these 'off types' within a variety can also be called 'genetic drift'. Many environmental factors can cause varieties to drift genetically.

It is generally regarded that seed from the first picking is more mature and thus will have a higher germination rate. If cotton is picked only once it will contain a high percentage of immature bolls which results in a high percentage of immature seed. ***However, no seed multiplication bonus is currently paid for seed from the first picking.***

The large amount of seed production by MALR is needed for two reasons; 1) the high planting rates, and 2) the uncertainty as to which varieties will be grown during the next 4 years. Four years are involved in planning for seed production since it requires 4 generations to produce certified seed for release to producers. When the varieties are reduced from the 10 varieties currently being produced to five, as now proposed by the CRI, the MALR will find it much easier to provide the breeder and foundation seed needed. Currently, seed has to be produced for all varieties, but sometimes plans are changed and some varieties are not used for planting so the seed that was produced is used only for crushing.

In some seasons more seed of a particular variety is needed and the demand for planting seed is greater than supplies so that certified seed (the 4th generation) has to be used to produce additional 'certified' seed. Hence the seed released to farmers is not bona fide 4th generation certified seed but 5th generation seed. Sometimes this practice must also be followed with foundation seed so that some times farmers receive 6th generation seed instead of 4th generation. Each generation allows more crossing and hence more off types and varietal degeneration. An example of varietal degeneration over time can be illustrated with the data on fiber maturity.

Cotton fibers first grow in length and then in fullness. Filling of the fiber with cellulose builds thickness. This is described as fiber maturity. Maturity of the fiber is particularly important in the finishing and dyeing stages. Immature fibers will not absorb dye in a uniform manner and thus fabric made with immature fibers will not be uniform in color.

The data presented in Table 6 represent changes that have occurred in maturity in five major export varieties of Egyptian cotton. These data indicate deterioration within these varieties. This type of deterioration in quality can only be due to degeneration of the seed.

Table 6: Percentage of Maturity of Fibers, Five Major Varieties, 1985-1995.

| Variety | 1985 | 1985-88 | 1989-92 | 1992-94 | 1995 |
|---------|------|---------|---------|---------|------|
| Giza 45 | 73.0 | 74.3 | 67.5 | 70.0 | 68.0 |
| Giza 70 | 80.0 | 81.8 | 78.5 | 76.5 | 74.0 |
| Giza 76 | 78.0 | 79.8 | 78.8 | 75.8 | 72.0 |
| Giza 77 | 78.0 | 79.5 | 73.5 | 74.5 | 73.0 |
| Giza 75 | 85.0 | 84.8 | 79.3 | 79.5 | 78.0 |

Source: Tabulation and summarization of CATGO data by Galal El-Rifai.

One would expect that spinners would prefer the production of a large number of varieties to give them a greater variety of cotton to choose from for spinning. However, increasing the number of varieties increases the probability of varietal mixing. The foreign spinners interviewed expressed the opinion that the Egyptian government can best make that decision based on its ability to maintain varietal purity (See Annex IV).

5.1.2 Planting Rates

Farmers in Egypt have grown accustomed to seeding rates for cotton of 70 KG per feddan. Practically all cotton is planted by hand. Cotton planting seed is usually placed in hills on the south side of ridges that are about 50 CM apart. Farmers have grown accustomed to using 10-20 seeds per hill and then thinning to 2 plants per hill. Prior to 1995 all planting seed used in Egypt was essentially gin-run seed (seed as it comes from the gin). Many varieties of Egyptian cotton have linters (short fibers remaining on the seed after ginning). These linters interfere with any type of seed processing and improvement. The germination rates of gin-run seed are highly variable. Farmers are also accustomed to using rather high rates of plant population, of about 70,000 plants per feddan.²⁰

In 1995 the MALR began to distribute delinted seed. For the 1995 and 1996 planting seasons mechanical delinting equipment of the seed-crushing sector was used. GTZ completed an acid-delinting plant to produce a substantial amount of seed for the 1997 planting season. In 1995 and 1996 the MALR provided only 30 KGs of mechanical delinted seed per feddan. Many farmers felt that this rate was too low and added additional seed that they obtained on the local market. This resulted in some mixing of varieties.

By using acid delinting and subsequent seed processing and treatment, seeding rates have now been reduced to 20 KG/ feddan and perhaps in the future can be reduced to 15 KG or even 12 KG/ feddan. These lower rates provide sufficient number of seeds. ***The problem is mainly an educational problem. Farmers need to be convinced that the new seed is better and the lower seeding rates are adequate.***

With a reduction in number of varieties and seeding rates, the area of cotton required for seed production can be reduced from 200,000 feddans at present to 70,000 feddans. This reduction will allow the CASC inspectors and the CASP production supervisors to provide much better management and control, and hopefully allow higher seed multiplication bonuses, ***and thus shift the emphasis from quantity to quality.*** The CASP could then begin to select and train individual farmers for seed production instead of dealing with entire seed producing regions.

Ginning also affects seed quality. With reduced seeding rates the MALR can reduce the number of gins needed for ginning seed. They can then pick the better gins. They can use airflow and

²⁰ Recent research has indicated that yields can be maintained with considerably lower plant population rates. This research, still unpublished, has examined population rates as low as 20,000 plants/feddan.

screening at the gins. The MALR now uses 17 commercial gins for ginning planting seed and they use their own gin for processing the foundation and breeder seed. With the reduction in area from 200,000 feddans to 70,000 feddans, and a reduction in number of varieties, the number of gins needed for ginning planting seed could be reduced to as few as five gins, only one per variety. With such improvements in seed production and ginning, the firms operating these gins could be brought into the seed merchandising picture and privatization of seed distribution could begin to occur.

5.2 Number of Pickings

Egyptian cotton flowers over a period of about a month. Hence to pick at the height of maturity of the lint, and the seed, requires more than one picking. When cotton is picked only one time, some bolls will be past maturity and will have suffered from weathering. At the same time, with one picking some late flowering bolls will be picked before maturity. Obviously, the more times the cotton is picked, the better will be the quality of the lint. The foreign spinners interviewed for this study reported some preference for first picking of cotton because of its higher spinning qualities (See Annex IV). The same is true for the quality of the seed for planting as discussed above. The high rate of single picking can definitely be associated with poor germination of seed in the past.

The number of pickings is definitely related to the price premium issue. On the one hand, with free markets, price premiums for higher grades of cotton will likely improve which will encourage producers to pick more often. On the other hand, ***expanded MALR extension efforts are needed to inform farmers that additional pickings, and post-picking cleaning and sorting of cotton will bring them more profit..***

5.3 Contamination on the Farm

During the last two years the GOE has recognized that contamination of cotton is a major problem and has undertaken major efforts to correct the situation. The MALR, through its extension service, is working at the producer level. They are making recommendations to farmers as to when to pick cotton. Also, they are asking farmers to avoid the use of synthetic bags for picking cotton. The MALR has provided a large number of picking bags made from cotton fabric. Most of these bags have gone to areas designated as planting seed producing regions but not all of the seed producing regions received picking bags.

The GOE also provided cotton strings for tying the seed cotton bags. The study team found these cotton strings at every ring and gin that they visited. In the 1998-99 season farmers were informed by the extension service that their cotton would be rejected at the PBDAC sales rings if it is not delivered in the proper jute sacks or is tied with synthetic tie strings.

6. COTTON QUALITY IN THE MARKET

6.1 Quality in the Sales Rings

The sales ring, or collection center, has been a standard method of selling seed cotton in Egypt for many years. In the past, village cooperatives or PBDAC managed the sales rings. Private sales rings were operated by a small number of private traders in 1998-99. Private traders were also permitted to buy directly from farmers in 1998-99.²¹

In the 1998-99 season private traders could contract to buy seed cotton at the PBDAC rings. In doing so the private trader agreed to purchase all cotton delivered to that ring, unless it was rejected for containing contaminants, and at the prices specified in the official table of seed cotton prices issued by the GOE. This method of selling preserves the price premiums specified by the GOE. These premiums for 1998-99 were LE 6/kantar for each 1/8 grade, regardless of the variety and its relative market value. Quality premiums can only be fixed by a free market if they are to represent spinning quality. The fixed price premium will give producers little reason to improve quality. The trader should be permitted to refuse bad quality cotton. **Fixed price premiums and the lack of competition at the seed cotton level will not result in the production of high-quality seed cotton.**

Operations at the sales ring should have little effect on cotton quality. The ring is simply a place where the seed cotton is graded and sold prior to going to the gin. However, the study team found several examples of mishandling at the sales rings. At all rings the standard practice is to store the cotton on the ground. Some sales rings had timbers available to lie on the ground to keep the sacks out of the dirt, but these were not used. Actually, use of such timbers would do little to keep the cotton off of the ground; they may only facilitate picking the cotton up with a fork lift. Some type of mechanical or tractor-mounted loader is often used to load the cotton on to trucks to transport to the gin. The cotton does pick up dirt while lying on the ground. Perhaps this is a small amount, but some mechanical cleaning or farfarra at the gin is needed to remove it.

In the 1998-99 season a new rule was made by the GOE to reduce contamination. This rule, regarding which farmers were informed, was that any cotton not in jute bags or tied with cotton strings would be refused at the PBDAC sales rings. The CATGO cotton graders were charged with the responsibility of enforcing this rule. CATGO graders at the gins also checked for these types of violations.

ALCOTEXA also established a committee to deal with contamination. It reported that it also worked through the holding companies to conduct inspections at the sales rings and gins for

²¹ Actually, private traders have been permitted to trade in seed and lint cotton since the 1994-95 season. However, during the past two seasons the GOE set floor prices for seed cotton that resulted in lint cotton values above the international prices so that few private traders were in the market during these two seasons.

contamination. Also, one spinning and weaving company reported that they purchase lint cotton on their own account and are inspecting the gins that they are buying from for contamination.

6.2 Quality at the Gins

There currently are about 60 ginning mills in Egypt. Before 1996 all of these ginning mills were owned and operated by five public ginning companies. In 1996/97 two public companies, Arabia Ginning and Nile Ginning, went under private management through the sale to private individuals of a controlling interest of the shares of the company. Other private companies have made investments in private gins, but the basic technology of ginning has changed very little. The standard ginning mill contains 45-76 roller gin stands with leather rollers and reciprocating knives. This is an old technology but one that is generally considered by the trade to be the best ginning system for ELS cotton. The average gin stand will gin about one kentar of seed cotton per hour.

However, the gins vary considerably in the methods of handling of the seed cotton. The best of the gins have pneumatic systems to move seed cotton from the opening tables to the blending rooms, and a second system to move it directly to the gin stands. These pneumatic systems reduce human contact with the cotton and actually remove dust and dirt from the seed cotton. In the worst gins, all cotton is moved by hand from the sacks to the gin stands. Some gins have very poor facilities for opening of the seed cotton sacks and for blending of seed cotton. These steps are very important in determining the final lint quality.

Seed cotton can be cleaned by either manual or mechanical methods. Hand cleaning can remove a significant amount of contamination. In most gins some workers are given responsibility to remove contamination, but these workers are usually assigned to perform other tasks, so that hand cleaning is only a part-time activity. It does not receive the attention it merits. Removal of contaminants before ginning is definitely advisable and preferable. A single large piece of synthetic fiber, such as a piece of polypropylene sacking, before ginning, will become a million little pieces during ginning, none of which can be found and removed. These items can be removed by hand methods or by mechanical methods.

Hand methods can and should be supplemented with new technology. Pneumatic systems to move cotton were mentioned above. Some new opening tables are being developed. Opening tables made with wire mesh or rods to allow dirt and small stones to fall out are simple mechanical assists, but appear to be useful. One gin we visited was installing conveyor belts to move the seed cotton from the opening tables. Workers will stand along side of these belts and observe the cotton as it passes them. This allows a worker a much better opportunity to spot contaminants and remove them. (See picture No. 2)

The rollers and knives on the roller gins can be adjusted with differing grades of cotton. All managers of the gins we visited reported that such adjustments are made depending upon the grade of cotton being ginned and at the request of the cotton owner.

The current annual ginning capacity in Egypt is generally estimated at about 12 million kentars.
Production of seed cotton has varied from 4.8 million kentars to 8.3 million kentars



Picture No. 2: A Newly Installed Seed Cotton Opening System with Conveyor Belts where Workers Hand Clean the Cotton before Ginning.

over the last 10 years. This excess ginning capacity puts downward pressure on the charges for ginning. This in turn under-cuts incentives for improving the quality of the ginning services.

Cotton quality can be improved through proper ginning, and the one who has the greatest incentive to do the best job of ginning is the owner of the cotton. Thus, it can be expected that either the ginning companies will enter into buying seed cotton and selling lint cotton, or private traders will purchase gins. In this respect, provisions should be made to sell or lease the remaining public gins on an individual mill basis rather than entire ginning companies that have 12- 20 ginning mills each. We expect that operation of the gins by private traders will improve cotton quality and, thus, privatization of the remaining public gins should be encouraged to occur at a rapid pace.

6.3 *Farfarra* and Repressing

Farfarra is an Arabic word that describes the sound that is made when cotton in bales is torn apart and the cotton is beaten to fluff it up. This is a part of what happens in farfarra. Following are notes from a visit to the public owned farfarra rooms in Alexandria.

"On the morning of 23 September 1998 we visited the facility in Alexandria where *farfarra* is conducted and cotton is re-baled for export. We entered a large room where the *farfarra* was being conducted. There was a large center floor with slots between the wooden boards. Around the outside of this center floor were piled about 20 bales of cotton. These were bales from the gins. Each bale was possibly from a different lot. Behind each bale was another full bale to replace the bale in front when it was gone. Two women were stationed at each bale. The woman who was standing would take handfuls of cotton from the bale and tear it apart, beat it against her other hand to fluff it up, and threw it in the air. At her feet sat another woman who picked foreign matter from the cotton, but it appeared that she could never keep up with the flow of cotton and could examine only a fraction of the cotton.

In the center of the room were two groups of young men (8-10 in each group). They would walk around and gather cotton into the middle of the room and push it into a pile with their feet. These young men would pick up the cotton, throw it up into the air a couple of times and then put the cotton into a sack.

Some people carrying hand water sprayers would spray some water onto the cotton before it was sacked. We were told that these sacks would be piled up to let the water spread through the cotton and after 24 hours. that cotton would be re-baled.

There was an older woman in the middle of the room who was the 'crew leader' who would shout orders to the group.

This is the regular manual *farfarra*. We were told that cotton exporters rent this room from the pressing company and the operation is under the control of the exporter.

In this building the bales received from the gins are stored on the 2nd floor, the *farfarra* and site where cotton is fed into the presses are on the 3rd floor. The press itself is on the 2nd floor, and the new steam-pressed bales are delivered to the 1st floor.

On the same floor as the *farfarra* was a set of conveyer belts where the cotton from the sacks filled from the *farfarra* the previous day were emptied and women sat on each side again picking out foreign matter or damaged cotton. This cotton then went to the steam press. This press produced bales containing 31-32 lbs. of cotton/cu. ft. After baling, the bales were wrapped and steel strap ties were put on. The bales slid down to the 1st floor where the ends of the bales were wrapped and then weighed on a balance scale. The weight in kgs was written on the cover of each bale.

There was a tremendous amount of dust in the air throughout the *farfarra* and pressing rooms. One had the feeling one was in a museum, except for the air pollution. All of the machines were ancient."

Farfarra and repressing bales for export have been a long-standing marketing feature of Egyptian cotton. Egyptian gins have traditionally been equipped with presses that produce large bales of about 400 kg (8 kantar) at low density (17 lbs. of cotton/cu. ft.). These bales were shipped to the local spinning mills or to the public pressing company in Alexandria. At the pressing company the exporter would organize the *farfarra* and after *farfarra* the lint cotton would be repressed into bales containing 6.54 kantar (327 kg, or 720 lb.) at a density of 32-33 lbs. of cotton/cu.ft. for export.

The *farfarra* activities in Alexandria currently cost about LE 2/ kantar. Repressing costs are LE 19.50/kantar or LE 127.50/bale and 5.2 cents/ lb. In addition to these cash costs are of course the managerial time of the owner and the interest on the bank carrying charges on the cotton.

Farfarra is conducted for two purposes, for blending and for cleaning the cotton. Both of these aspects involve quality aspects that are important to Egyptian cotton. Manual blending at the point of export allows exporters to produce large lots of uniform cotton. The exporter has access to all of the cotton production of the country and can blend what cotton he has purchased to produce the type he has contracted to provide to the foreign spinner. He supposedly knows the specifications of each lot of cotton that he has bought and determines which lots to blend together and in what proportions. The lots should have equal staple parameters with differences only in grade, and actually within a small range of grades.

A second quality aspect of *farfarra* is the matter of cleaning, especially of contamination. Some traders claim that *farfarra* removes a large amount of contamination and significantly improves quality. Others claim that *farfarra* is a source of contamination, particularly of such things as pieces of the jute bale coverings and pieces of the metal straps that are cut when these bales are opened. But also, the workers drop waste material into the cotton, such as food wrappers, and scraps of their clothing are added and a lot of human hair.

Cases of both removal and addition of contamination in *farfarra* exist. The value of *farfarra* has been vigorously debated in recent years.²² Should it be continued? Is it cost effective? Are there alternatives? Does *farfarra* eliminate or add contamination to the cotton? The *farfarra* process is dependent upon cheap labor. Labor costs will continue to rise over time. The health of the workers is another serious matter. The air in the *farfarra* rooms is laden with dust and minute fibers. Workers in developed countries would not tolerate such unhealthy working conditions and the health of these workers should be considered in this decision.

One alternative to *farfarra* and repressing in Alexandria is the installation of new bale presses to produce higher density bales ready for export at the gin. During the last two-three years, several private cotton exporters have installed new presses at gins that they have purchased from the public companies or at new gins that they have constructed. These presses produce the so-called U.D. bale (universal density) also called the American bale, which contains about 24 lbs. of cotton/cu. ft. and a total weight of 480-500 lb. (218-227 kg). This type of bale is acceptable to foreign buyers. This bale reduces insurance, storage, and transport costs compared to the old low-density bales produced at the gins, but handling costs are slightly higher with the U.D. bale than the high-density steam pressed bales produced at Alexandria.

Baling for export at the gins avoids one major cost, the re-pressing or re-baling done at Alexandria. The baling cost is the major part of this activity as mentioned above. But there are some possible disadvantages. Egyptian cotton has long been noted for the uniformity of its lint. Will exporters be able to find sufficient quantities of the quality of lint cotton desired to produce the private types needed to fill their export contracts when they are drawing from the output of only one gin? Will export buyers prefer *farfarra* prepared lint? Will they be satisfied with this marketing procedure?

One major private exporter, who firmly believes that *farfarra* increases contamination, believes that he can fill the requirements for uniformity of lint requested by foreign buyers through more careful buying and blending, or *farfarra*, of seed cotton. The *farfarra* of seed cotton is designed to remove contaminants and to blend the seed cotton. Removal of contaminants before ginning is definitely advisable. Large pieces of synthetic fibers become a million little pieces during ginning.

Three major private exporters indicated that during the 1998-99 season they intend to give their customers the choice of lint prepared under the traditional *farfarra* and repressing system in Alexandria or the new system of baling ex-gin. Reactions by the buyers to this new marketing technique will be known in a season or two.

Most of the foreign spinners interviewed for this study showed little interest in the *farfarra* process in Alexandria. Some spinners expressed concern that the *farfarra* operation may add to contamination. Other spinners expressed concern that baling for export at the gin would result in smaller export lots which will need additional blending at the spinning mills to gain the uniformity needed for spinning (See Annex III).

²²See "Conflicting Views on Farfara" unpublished paper by Edgar Ariza-Nino. APRP-RDI. 1998.

Farfarra is normally not practiced on lint cotton sold to the domestic spinning mills. The lint cotton moves from the ginning mills to the spinning mills. The changes in marketing of export cotton may have some impacts on the domestic mills as well. The old low-density bales produced by the ginning mills are not desirable from the viewpoint of the spinners. These bales are costly in terms of storage and insurance. These low-density bales can burn (there was a major fire in Alex. Stores in March 1998) whereas the high-density bales will burn only very slowly on the outside. There is a very substantial difference in the fire insurance costs as a result. Spinning mill managers expressed interest particularly in the new U.D. bale presses being installed at some gins. Thus, the use of the new U.D. presses at the gins will also improve the quality of the cotton arriving at the domestic spinning mills.

Pictures No. 3, 4 and 5 illustrate the old and new baling system at the gins. The new presses being installed for the 1998/99 season (picture No. 3) produce a bale of a higher density. These bales, (picture No. 4) when carefully wrapped with jute keep the cotton clean and reduce losses in transit or in storage in comparison with the old style loose bales produced at the gin (picture No. 5).



Picture No. 3: A Universal Density (UD) Bale Press Recently Installed at a Gin.



Picture No. 4: New (UD) Bales Produced in the 1998/99 Season.



Picture No. 5: Loose, Poorly Covered Bales of Lint Cotton of the Type Currently Produced at the Gins.

7. ROLE OF THE GOVERNMENT

During the course of the interviews conducted for this study the study team often received comments to the effect that all of the quality problems with Egyptian cotton will disappear, or be solved, with complete liberalization and privatization of the cotton sub-sector. The argument put forth was that the free market would provide the necessary price and profit motives at all levels so that high quality cotton will be properly rewarded with high prices and low quality cotton will be penalized with low prices. These remarks came from both private traders and public officials.

The study team fully agrees that free markets and market-determined prices would encourage producers and the traders to improve the quality of Egyptian cotton. However, it is also our opinion that the GOE will continue to have a major role in the long run in the maintenance of quality in cotton even if or when all trading and marketing operations become completely liberalized and privatized.

Breeding of cotton varieties will long remain a public responsibility. Some private companies around the world are doing crop breeding work but not of all crops. Privatization of cotton breeding is certainly a long way off in Egypt. Egypt must continue to maintain single variety producing areas to maintain varietal purity. The current plan by the MALR to reduce the number of varieties grown will help in that regard. However, the determination of which varieties to be produced should be a joint decision between the MALR, the growers and the industry. The choices of varieties should be based on market forces, on agronomic, climatic and other production factors and on the availability of seed. The MALR, on the basis of genetic and agronomic factors, could propose a list of varieties for growers to choose from. A poll could be taken in each area to determine the farmers' collective choice for their area. But after a poll is taken, all growers in an area would be required to grow the one selected variety.

The production and improvement of cotton planting seed will remain a responsibility of the MALR for some time, but distribution of cotton seed should be privatized as soon as possible. The recent accomplishments in delinting and improvement of planting seed are to be applauded, but more work remains to be done by the MALR to reduce planting rates and improve seed quality.

Determination of official grades of seed and lint cotton should remain in the public domain for the foreseeable future. CATGO's role can be expanded through timely release of HVI results. A recent decision by the MTS to install trash analyzers for testing of all lint cotton at all gins is an example of the Government's acceptance of responsibility in the task of maintaining cotton quality

The timely and widespread distribution of information on crop area, yields, production, exports, and information on the quality of the cotton crop, including HVI data, should remain as a public responsibility. Economists define perfect competition as a situation that also includes perfect information. However, the private sector will not provide full and complete information to all players in the market. Private firms tend to hold valuable market information for their own interest. The task of wide dissemination of market information is a role that can best be

filled by the Government. The cost of such government activities must be borne either through fees, such as on grading, or through general taxation on profits or incomes.

The current campaigns in MALR, CATGO, ALCOTEXA, and the public cotton companies to eliminate contamination are producing good results. Trade personnel claim that contamination is decreasing. The MALR must sustain these campaigns and must also continue to have responsibility for training and education of farmers in cotton production, harvesting, post-harvest handling and marketing techniques through its extension activities. Private firms will not likely take responsibility for general programs of farmer education but private marketing firms may engage in contracting with producers to produce specified cotton varieties and grades. Under proper contracting, the marketing firm can provide expertise to the contract producer and in turn receive superior products.

The education task is far from complete; in fact it will probably never end. The large numbers of farmers makes extension a difficult task. The number of topics needing attention is also lengthy. And with the development of new technology, the extension task continues. Farmers need technical guidance, in fact some are asking for help, on a large number of production and marketing topics.

These government activities taken together provide a 'framework or system for cotton quality' within which producers can freely make production and marketing choices and traders can freely make their decisions on prices and quantities to buy and sell, and to engage in domestic and international activities. **These types of government activities do not interfere or substitute for the free markets or private trade; on the other hand they can be a considerable assistance to the markets and will contribute to the improvement of cotton quality.**

8. RECOMMENDATIONS

8.1 Simplify The Grade Terminology

Of all of the ELS cotton producing countries, Egypt has the most complex grading terminology, which is not easily understood by either the export buyers or the Egyptian cotton producers. A more useful system would be a simple set of labels such as "No. 1", "No. 2", etc. up to about "No. 6 or 7."

Other countries need no more than 4-6 grades. Our examination of the Egyptian grades reveals that over 90 % of the cotton now falls between grades Good and Good/Fully Good. This range in quality could be covered with 3-4 grades leaving one or two grades above and below. Thus, we recommend that the trade adopt a simpler set of grade titles and a reduction in the number of grades. CATGO and ALCOTEXA could take the lead to define a new set of grades.

8.2 Exporters Should Consider Providing HVI Certificates to their Buyers

HVI is a widely used system of measurement of the physical properties of cotton. In 1997 the ITMF reported that HVI is used in 60 countries and over 1000 systems are in use. Three such systems are currently in Egypt. One system is in place in the TCF, which is available for use by the domestic spinning mills, a second in CATGO, and a third with the CRI, which is used for research purposes only. The CATGO equipment has been in place since 1994. It is used to test every lot of lint cotton produced. Approximately 35 - 40,000 lots of lint cotton are tested annually. The resulting data are provided in an annual summary report on the crop in the Egyptian Cotton Gazette.

Several Egyptian cotton exporters reported that they provide HVI test results as a courtesy to their buyers. The foreign spinners interviewed for this study strongly favor the provision of HVI certificates. We recommend that HVI tests be performed on all export lots of lint cotton and that exporters provide the HVI test results as a complimentary service to their buyers. The CATGO equipment now in place is adequate for such testing.

After a period of 3-5 years the trade should consider the option of moving from selling by type to specification export sales. We do not recommend moving to specification sales at this time. We feel that a transition period is needed to ensure that the local HVI equipment will produce the same readings as HVI equipment in other countries. Precautions needed include proper calibration, proper sampling procedures and sample conditioning, and precautions to ensure that the HVI equipment operators have the necessary skills.

8.3 Distribute HVI Results During the Marketing Season

CATGO now performs the HVI tests on all lots of lint cotton. These lots are sampled at the gin. Thus, the samples are being sent to CATGO as the season progresses. We recommend that CATGO release the HVI test results on a periodic basis as the marketing season progresses. The

first release would probably not occur until sometime in October after a sufficient number of lots has been ginned. Releases should not be made until the number of lots is large enough to protect the privacy of individual lint owners. As soon as sufficient observations are available, CATGO should make the HVI data available to all potential members of the cotton trade, both domestic and foreign. Our suggestion is to submit these data on a monthly basis to an international publication, such as *COTTON OUTLOOK*.

8.4 Sustain and Enhance the GOE Campaigns Against Contamination

The responses obtained during interviews of members of the domestic trade lead us to conclude that the MALR efforts to eliminate contamination of seed cotton are being effective. All parties interviewed indicate that the level of such contamination was diminished significantly in the 1998-99 season. A particular feature of the 1998-99 season's program was the threat of rejection of seed cotton at the rings if it was tied or bagged with improper materials. However, the study team observed several violations of these recommendations indicating that the task has not been completed and that such efforts cannot be relaxed. Thus, MALR must sustain and enhance these efforts over an extended number of seasons *until the improved practices become the automatic behavior of the entire trade*.

Campaigns by ALCOTEXA, CATGO, the holding companies, and the spinning companies to control contamination at the gins is also to be commended, but it also must be sustained.

8.5 Attempt to Remove Synthetic Sacks Being Used to Provide Farm Inputs

Farm inputs, especially fertilizer, are currently being provided to farmers in sacks made from synthetic fibers. Unfortunately, these sacks often become used as cotton picking sacks. This is unfortunate as pieces of these sacks find their way into the cotton, and these materials are the worst contaminants in lint cotton. The GOE should consider measures to require input suppliers to remove these sacks from the rural scene, either through incineration or through recycling programs, as a means to reduce contamination in cotton.

8.6 Expand MALR Extension Activities in Cotton Production

Members of the private trade are in agreement that the Government has a major role to play in the quality aspects of cotton by providing education and training to producers in proper production and marketing skills. Of particular concern are items such as proper seeding rates, proper plant populations, proper timing of applications of fertilizer and irrigation water, proper use and timing of pesticide chemicals, and proper techniques in picking and handling of the seed cotton. All of these aspects have an impact on cotton quality. The skills needed to produce quality cotton are best provided by the MALR extension workers.

The study team interviewed farmers, who even asked for more information on how to improve the grade of their cotton and how to produce better cotton. Some farmers indicated willingness to pay

for brochures that would help them to produce better cotton. The MALR extension service must fill these information gaps.

8.7 The MALR Should Maintain Fewer Cotton Varieties

The large number of varieties produced in Egypt results in stress on the seed management system. A significant number of cases of mixed cotton have been reported in recent years. Mixing of cotton varieties results in deterioration of that particular lot of lint, but the probability of mixing of the planting seed is a much more serious matter. The probability of mixing cotton increases with the increase in the number of varieties. Mixing of varieties would be cut to zero if only one variety was grown in Egypt, but one variety would not satisfy the needs of the local and export spinning industry.

Fortunately, the MALR is currently planning to reduce the number of cotton varieties. The Director of the Cotton Research Institute informed us of their current plans to minimize the number of cotton varieties. They hope that in a few years they will be growing only 5 varieties; one in Upper Egypt, two ELS varieties and two LS varieties. The transition from the ten varieties grown in 1998-99 to only five varieties will take some time because of the need to also introduce one or two new varieties and to provide the seed needs associated with fewer varieties. We commend the CRI and MALR for their decisions to move in this direction.

8.8 MALR Must Continue to Improve the Quality of Cotton Seed

MALR must in the long run retain the responsibility for cotton breeding. The MALR also currently produces all cotton planting seed for producers. Steps toward privatization should come at the distribution phase.

MALR must maintain its efforts to improve the production of quality seed. The reduction in the number of varieties will be of great help in this regard. Additional steps must be taken to reduce seeding rates through expansion of the use of delinted and fungicide-treated seeds and through extension efforts to convince farmers to reduce plant populations. Improvements in germination rates are needed and can be produced through delinting and associated seed enhancement activities. The number of generations between breeder seed and certified seed can be reduced through the reduction in number of varieties in the breeding program.

Seed multiplication bonuses currently paid to producers are too small to provide adequate encouragement to produce quality seed. These bonuses need to be increased and special bonuses paid for first picking seed.

8.9 Supplement Manual Cleaning Methods at the Gin with New Technology

Manual cleaning of seed cotton at the gin must be encouraged, but observations of the study team indicate that most manual efforts fall short in removing all contamination. Frequently, those assigned to cleaning seed cotton have other responsibilities and the removal of trash or contamination becomes only a part-time effort. These efforts must be supplemented with modern technology. A

wide variety of mechanical systems are available including mechanical assists to hand cleaning methods, such as mesh or steel opening tables, air flow systems to remove dust and dirt, ultraviolet lights to illuminate synthetic fibers, and possibly optical scanners. The goal must be to remove as much contamination as economically possible prior to the ginning process to avoid multiplication of the synthetic particles in the lint.

8.10 Continue Liberalization of Markets

Observations by the study team provided several examples of quality improvements now occurring as a result of movements to market liberalization. Several private traders espoused the desire to buy only the better grades of cotton. These same buyers avoided contracting to buy seed cotton through the PBDAC sales rings specifically because such arrangements would require them to purchase all the seed cotton delivered to the rings, including low quality cotton. Changes in operating rules of the PBDAC market rings are needed to place greater penalties on low value cotton. The current system insures a market for all cotton, regardless of its quality.

Freedom for private buyers to examine and purchase seed cotton outside of the PBDAC rings will promote exports of quality cotton. Private buyers will pay premiums for higher grades, which reflect spinning quality and which will encourage producers to produce better grade cotton, and heavy discounts for lower grades which will discourage production of poor grades. Market forces will also produce differentials for each variety, which differ according to spinning qualities.

Privatization of the remaining public gins should be encouraged to proceed as rapidly as possible. Sales by the public companies of individual gins, rather than entire ginning companies, is expected to hasten the privatization process and lead to more competitive gin markets. Operation of the gins by private cotton traders is expected to lead to improved ginning and thus improved lint cotton quality

8.11 Allow Flexibility in Pricing of Ginning Services

For many years the public holding companies or ginning company officials have set ginning charges. These charges have generally been based on quantity, with no consideration for payment for improvement in the grade of lint cotton produced. Ginning companies have been competing to some extent through the provision of extra services, such as storage or transportation. The Government should commit to stop setting ginning charges once all gins are privatized.

8.12 Permit the Market to Set Quality Premiums

In the long run, only the market can determine appropriate price premiums for better grades of seed cotton or lint cotton based on the value in spinning. If ALCOTEXA finds it necessary to set basic export prices, perhaps a price could be set for one base grade per variety and permit the market to determine the differentials by grade. Price premiums for seed cotton should also be made flexible to allow quality to be linked with price. Similarly, at the seed cotton market rings the grade premiums should be market determined. Small-fixed grade premiums tend to under-reward the producers of high quality cotton and under penalize the producers of low quality cotton.

ANNEXES

ANNEX I: PERSONS CONTACTED IN EGYPT

ANNEX I- PERSONS CONTACTED IN EGYPT

- Abdel Aziz El Toony, Middle Egypt Spinning & Weaving Co., Beni Suef
- Abdel Fatah Gaber, CATGO cotton classer, PBDAC sales ring, Kafr El Sheikh
- Ahmed Baragith, Tanta Cotton Trading Co., Tanta
- Ahmed Fouad, PBDAC sales ring manager, Beni Suef
- Ahmed El Gohary, Director, Cotton Research Institute, MALR
- Ahmed Mahmoud Masekh, Chairman of CATGO,
- Ahmed Shouman, Chairman of Nefertity Cotton Trading Co.
- Amin Abaza, Modern Nile and Arabia Ginning Co.
- Ayman and Tamer Nassar, Nassco Cotton Co.
- Bakeir Oteifa, Senior Advisor to the Minister on Agriculture
- Bolus Butros, Manager of PBDAC sales ring, Daqahliya
- CATGO cotton classer, (name unavailable), Fayoum Sales Ring.
- Edward Malky Ibram, Manager, MISR cotton gin, Fayoum
- Eng. Nashed, Fayoum spinning mill, Middle Egypt Spinning & Weaving Co.
- Ezz El Din El Dabbah, Private cotton trader, Minya
- Fawzy Abdel Halim Emara, Manager of Arabia gin #1, Damanour
- Fawzy Naim Mahrous, Chairman of Agricultural Extension Sector, MALR
- Farouk Ebaid, Comm. Dir. MISR Trading Co.
- Gamal Rifai, Arabia Ginning Co., Beni Suef
- Hassan Wafi, Private cotton trader, Fayoum
- Kalid Abo Esmail, cotton producer, Kafr El Sheikh
- M.A. Tabbakh, Head of Supply and Import Sector, Cotton and Inter. Holding Company
- Magdi Fathi, CATGO cotton classer, Beni Suef
- Mahmoud and Mohamed El Garhie, Private cotton traders, Fayoum
- MISR Sales ring, Fayoum governorate
- Mohamed Abdel-Bar Hegazy, Deputy Chairman, Unirab Spinning and Weaving Co.
- Mohamed Abdel Rahman, Private cotton trader, Beni Suef
- Mohamed Nour El Din, Owner, East for Trade and Egypt, Tanta
- Mohamed Mohsen Abd El Alim, Manager, Arabia gin, Beni Suef
- Mohsin Ahmed El Orabi, Manager of Arabia gin at Sinbelawin
- Nabil Easa, CATGO cotton classer, Arabia gin #1, Damanour
- Saad Nassar, Director of ARC, MALR and Director of APRP
- Said Haggag, Chairman, ALCOTEXA
- Samir Abd Rafi, Manager of PBDAC sales ring, Kafr El Sheikh
- Wagdy Hendy, Chairman, Port Said Trading Company
- Yassin Osman, Head of the Cotton Council, MALR

ANNEX II: QUESTIONNAIRE FOR FOREIGN SPINNERS

ANNEX II: QUESTIONNAIRE FOR FOREIGN SPINNERS

1. Comparison of Grading Systems. Which grading system is best for Egypt?

- 1.1 The traditional grading from Fully Good to Extra down to Good +1/4, 21 grades of which only 5 are in effective use, due to unavailability of higher grades?
- 1.2 or, a numerical, simplified system, Grade 1,2,3,etc. as used by other producers of ELS?
- 1.3
 - Did the Egyptian system of 'Sale on Type' satisfy your technical requirements?
 - Have you experienced uneven deliveries in grade within one and the same lot?
 - Have you experienced unusual fluctuations in micronaire/Pressley, or in the percentage of short fibers within the same lot?
- 1.4 Current price differentials for 1/8th of a grade stand at 3 cents per lb. Are you willing to pay a higher premium so that your cotton comes from the first picking, generally with a lower content of short fibers? Mixing at the gin of 1st with 2nd pickings leads to higher contents of short fibers in the cotton.

2. Scarcity of labor at the blending *farfarra* in Alexandria has led:

- 2.1 to much fewer manual (manned) blending *farfarra* in Alexandria
- 2.2 to a larger substitution of same by mechanical blending *farfarra*.

Do your shippers inform you that your cotton has been run through a manual or mechanical *farfarra*?

Did you notice any difference as to even-milling uniformity of grade in such lots? Trash and waste contents?

- 2.3 Did you notice an eventual higher infestation of your cotton by foreign matters if blended mechanically?

3. Additional, forthcoming changes in the blending *farfarra* of lots for export:

The scarcity of labor in Alexandria, combined with an attempt to reduce overheads, may soon lead to:

- 3.1 the abandonment of large blends in Alexandria that used to produce in series lots of 150 bales, matching selling type in grade, character and staple,

- 3.2 and favor smaller blends of up to 75 bales per lot and their direct pressing at the gin in the interior into high density export bales.
What are your views on this subject? Will an eventual price cheapening by approximately 5 cents per lb. compensate any other detrimental factors?
- 3.3 If and when exports of Egyptian cotton will be made ex-gin - after rehabilitation and modernization of the ginning Industry - would, you consider a guarantee of main parameters Micronaire and g/tex per HVI certificate as essential?
- 3.4 The *farfarra* in Alexandria represented the last resort in eliminating to some extent foreign matters from the cotton. Would you insist that such elimination manually or by new technological scanners be transferred to the gins working for export?
- 3.5 As a contribution to the fight against infestation of cotton by foreign matters would you request that the Egyptian Export Bale be clad in 100 pct cotton burlap instead of hessian?

4. Varietal deterioration, downgrading of quality.

The Egyptian cotton sector is evidently overloaded with too many varieties:

Giza 45, Giza 87, Giza 76, Giza 70, Giza 77, Giza 88 ELS

Giza 86, Giza 75, Giza 89, Giza 80, Giza 83, Giza 85 LS

This dangerously overburdens Egypt's capacity of its cotton maintenance program, i.e. control of genetic changes, inbreeding, varietal mixing.

- 4.1 Are you in favor of a reduction of the overall number of cotton varieties in Egypt? Which ones would you favor for continuity in future?
- 4.2 From your point of view what is the spinnability of those Egyptian cotton varieties you use at your mill?
- 4.3 What fine counts do you produce with which specific varieties?
- 4.4 For blending with other ELS cottons, which Egyptian varieties do you use?

5. Trading / Egyptian cotton pricing

- 5.1 Under the system that prevailed during decades, you were confronted with a fixed price for Egyptian cotton from the opening date through the season.
- 5.2 The privatization process is irrevocable and Egyptian cotton trade is heading for the free market.
- 5.3 Do you accept in principle the idea of Egyptian prices being pegged to some international system for ELS pricing, say with a discount for Giza 86 below US Pima Grade 3 1-3/8" and a premium for Giza 70 over US Pima Grade 3 1-7/16"?

- 5.4 Today, what discounts respectively premiums, would you consider as fair and conducive to business?
- 5.5 You may personally have an altogether different approach to this matter. What are your suggestions?

6. Claims and particular requirements

- 6.1 From past experience with Egyptian cotton running in your mill, you may have: - specific claims and complaints to formulate . . ., or
- specific technical or other requirements or suggestions to make . . .
- 6.2 Your remarks interest us. We want to study the points you may raise in committee, evaluate their consequences, try and find solutions and improve service to foreign buyers of Egyptian cotton by all means and ways.

Please feel free to express yourself in such respect. Your suggestions will prove most helpful,
August, 1998

ANNEX III: FOREIGN SPINNERS RESPONDING TO SURVEY

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D M C Dollfus Meig & Cie., Mulhouse, France

Brennet AG Spinnerei, Bad Sackingen, Germany
Schoeller Textil GmbH & Co. KG., Duren-Niederzier, Germany

Leggiuno, SpA., Leggiuno, Italy
Manifattura di Legnano, Legnano, Italy
Filatura Monti SpA., Montebelluna, Italy
Cotonificio Olcese-Veneziano SpA, Novara, Italy

Hermann Buehler AG, Winterthur-Sennhof, Switzerland
Spoerry & Co. AG, Baumwollspinnerei, Flums, Switzerland

Nisshinbo Industries Inc. Osaka, Japan
Japan Spinners' Association, Osaka, Japan.
 Responding collectively for:
 Kanebo Spinning Corporation, Osaka, Japan
 Kurabo Industries Ltd., Osaka, Japan
 Shikbo Ltd., Osaka, Japan
 Sumitomo Corporation, Osaka, Japan
 Toyobo Co. Ltd. Osaka, Japan

Dong Il Corporation, Seoul, Korea
Kyungbang Ltd. Seoul, Korea
Shindong Enterprises, Seoul, Korea

Coats Egypt, 10th of Ramadan, Egypt

**ANNEX IV: GENERAL SUMMARY OF INTERVIEWS WITH
FOREIGN SPINNERS USING EGYPTIAN COTTON**

ANNEX IV: GENERAL SUMMARY OF INTERVIEWS WITH FOREIGN SPINNERS USING EGYPTIAN COTTON

This summary presents a brief overview of the answers to our queries listed in our questionnaire to 19 mills using Egyptian cotton in various markets such as Japan, Korea, Germany, Switzerland, Italy and some others. The study "Grading & Quality" just initiated, has not only much to investigate within Egypt, but wanted as well to consult foreign users of Egyptian cotton, as a fair appreciation of the views and suggestions of such traditional clients.

Continents apart and with large variations in their spinning programs, how can these industries be classified? In order to attain a valid average, one sewing thread manufacturer and one hand embroidery thread manufacturer were chosen. In Japan, fine spinners produce mostly 60's 80's and 100's or finer. It should be borne in mind that all main mills are licensed by Supima of America, which may influence their approach to our questions. The 60's are the domain of US Pima, where Egypt may have a valid hope to compete with its Giza 86. The 80's are to a large extent the product of blending US Pima with Egyptian Giza 77 or Giza 70. For 100's it is the exclusive domain of Egyptian Giza 70, Giza 76, Giza 45, volume-wise much smaller than the other two programs. Korea has a certain similitude 60's still spun from Giza 7 and Giza 86, 80's from Giza 77 or Giza 70. Here too licensing by the same organization is progressing, as well as in a number of other countries. Europeans mills are heavily biased for Ne60 for shirtings - the heavyweight of their production - but also in the Finest of the High counts, if one bears in mind the Swiss production.

These specifications are necessary in order to draft the attention on a number of mills' reports clearly stating that Egyptian cotton was given up 2 or 3 years ago, other mills shifted entirely into Pima cotton, others again having opted for purchases of yarn made out of Egyptian cotton are still facing stiff claims and losses due to contamination by foreign matters and fibers. This preliminary introduction to state once more on the specific request of a number of participants That:

**"THE QUALITY OF COTTON DOES NOT REFER ONLY TO COTTON
CHARACTERISTIC BUT INCLUDES AS WELL FREEDOM FROM CONTAMINATION
BY FOREIGN MATTERS AND FIBRES"**

They requested this current study to give an appropriate priority and importance in promoting ways and means of eliminating contamination at origin.

Any measures taken hitherto proved inadequate to eliminate this problem. Claims have been played down and shippers have rather talked themselves out of any case raised for consideration. Users of Egyptian cotton have an open flank on the supply side, while having to play the game according to the rules and regulations of associations abroad, for the sale of their yarn. Traditional as well as potential buyers need:

- Immediate action,
- The use of modern technology where random hand-picking has failed,

- Elimination of bags and twine from field to gin, with eventual replacement by adapted modules to local gins

Summary of Responses

1.0 Comparison of grading systems

- 1.1 The majority of the respondents are against maintaining the current grading system.
- 1.2 The majority are in favor of a simplified, numerical system: grade 1, 2, 3 etc... such as the American Pima system.
- 1.3 The Egyptian system of contract sales on type seem to satisfy the majority of buyers. Some deliveries of uneven running grade of Giza 77 and Giza 75 have been met. Occasionally micronaire differences from 3.6-3.8 in Giza 86 were confronted with Mic 4.4 in a separate delivery. Differences in percentage of short fibers also occur. There sometimes are big differences between type samples and actual shipments. The same has been experienced with some Giza 77 shipments. Spinners ask Egyptian exporters to prepare new type samples each season. Staple lengths are not currently specified in types. It would be helpful if the staple length was specified.
- 1.4 Some mills would be interested in cotton from first picking with an expectation of a lower percentage of short fibers that would permit combing to be reduced from 18% down to 14%. But market competition does not allow payment of higher premiums than those now in force. Also, they find it questionable, whether they can ever be sure to effectively receive cotton from the first picking. In the frame of exports, a thought should be given if first pickings can be segregated for export lots. Due to lack of experience with 1st pickings, spinners could not estimate a correct premium for such cotton.

2.0 Blending rooms / *farfarra*

- 2.1 Most of the buyers are not aware or informed about the blending system used in Alexandria, or that due to scarcity of labor mechanical *farfarra* has been in use. Spinners prefer that the blending method used be that system that reduces introduction of foreign matter.
- 2.3 Some responded that they expect that mechanical *farfarra* would reduce contamination.

3.0 Forthcoming changes in *farfarra*

- 3.1-3.2 Assuming that space availability at gins is restricted, the opinion about smaller lots, say 75 bales at most, is very mixed. Some spinners would accept it as such, others are of the opinion that smaller lots need additional blending at the mill, wherefrom the entitlement of a discount, said to be 5 US-cents per lb. (Economized on the hitherto standard 12 cents/lb.

FOB ex-Alexandria). Some would like to see stricter grading.

- 3.3 Be it ex-Alexandria or ex-gin for direct export, the appeal in favor of HVI certificates is quite pronounced. Such a standard service, which is already offered by the States and Australia, if implemented in Egypt, would demand of course a certain period of time to be fully introduced. Some would favor a guarantee of the main parameters. There are two other advantages from the implementation of HVI classing: to have a better technical control over the cotton produced in any specific area, depending from any given gin, and secondly to check the competency of the seed-cotton classers in the interior.

One important remark: to those sophisticated mills producing the finest counts, HVI is less essential than the AFIS system to have a constant control over the percentage of short fibers bale by bale. Exact calibration of such systems with an acknowledged association, at prescribed, regular intervals is a "MUST". Fluctuating values are of no use to any one.

- 3.4 The *farfarra* in Alexandria as last resort towards eliminating contamination of foreign matters & fibers by hand picking. There are two schools of thought among foreign mills. Some fear that any additional handling of the cotton starting from the field onwards, is only liable to increase the contamination of the cotton with foreign matters, rather than reduce it, by an inadequate hand-picking process. Secondly, foreign buyers firmly believe that such elimination is the duty of the producer, of the origin.

Therefore, assuming that a new trend has begun of transferring progressively blending and pressing for export to gins, the Authority should compel such gins to make use of modern technology and adapt scanners to effectively remove between 50% and 70% of extraneous matters. Such an achievement could become a historical event and have an enormous influence on sales of Egyptian cotton to foreign buyers. **The important point is to reduce foreign matter.**

- 3.5 Regarding 100 percent cotton bale wrappers: Most are in favor of it, but as standard prescription for export bales, without any premium. In their opinion, any contamination by jute fibers at time of opening of bales is unimportant in comparison to the heavy infestation at origin, starting from the field at time of picking. A discount should be offered if jute bags are used.

4.0 Varietal deterioration, downgrading of quality

- 4.1 Most spinners are in favor of a reduction of the number of varieties that were current until 1997/98. Some were more reserved with their answer, consider it for the Egyptian authorities to decide on the matter, if and when their cotton maintenance program is effectively overloaded. Most mills stated their preference as to which varieties should be kept for the future. Depending on their spinning programs, the majority were for Giza 70, Giza 77 and Giza 86, a few included Giza 45 and Giza 76, or some other LS varieties. However, this has been said without keeping in mind the needs of the domestic mills, which

have such an important say to this.

- 4.2.1 The spinnability of Egyptian cotton is considered excellent. Its features: strength and lustrous fiber, smooth running on the machines. Egyptian cotton should have good spinnability with lower short fibers, high uniformity and lower nep counts. A peculiarity rarely mentioned is that when a card runs on 100 percent Pima cotton, it has a shorter life than if it were running on 100 pct Egyptian. The deterioration of the card fittings is due to a slight twist found in Pima. To fit a new card, it costs USD 8,000 per card, not counting the time it lays idle. This is again a facet of the excellent spinnability of Egyptian cotton ginned on the good, old gins with reciprocating knives.
- 4.3 Counts produced vary from unit to unit or according to a number of programs in one and the same mill, from Ne 40 to 140. All do not run exclusively on Egyptian cotton, but just to give a general idea, to start with even Ne 40 can be improved in appearance and strength by adding some Giza 75 to the blend. Ne 50 to Ne 60 Giza 86 or Giza 75 (as long as available) or similar, Ne 80 Pima, Giza 77, Giza 70, what is over Ne 80-100 should demand Egyptian ELS, including Giza 76 and Giza 45. In a difficult market, for the sake of competitiveness except for the highest counts mentioned, a mill will closely look at Sudan Barakat top grades, Israel Pima, US Pima and what have you... CIS ELS, Chinese 145.
- 4.4 Blending is done with many other ELS cottons to reduce costs.

5.0 Trading/Pricing of Egyptian cotton

- 5.1 (Comment from Japanese Spinners Association)
" We cannot comment at this moment as to what premium/discount ranges will be reasonable for Egyptian cotton as compared with U.S. Pima cotton because it may change according to fluctuations in the world market. However, it is one of the ways that the pricing of Egyptian cotton is to be made in relation to the prices of U.S. Pima cotton."
- 5.2 No comments.
- 5.3 Prices for Egyptian cotton are a delicate subject. Most of those questioned admitted they could live with prices just issued for the new crop 1998/99. Taken individually, some differences in opinion may have occurred. On average, Giza 86 some 10 cents per lb. below the price of US Pima and Giza 70 some 5 cents per Lb. premium over the same. This is said under the proviso of what follows under 5.4 and 5.5
- 5.4 & 5.5
Taking into consideration the fact that privatization is being implemented in the Egyptian cotton sector, most spinners wanted to make it clear that Egyptian prices may be loosely connected to those of US Pima. However, the end effect should be that only supply and demand, as understood in a free market, should apply in pegging prices for Egyptian cotton.

6.0 Claims and particular requirements

- 6.1 Contamination, contamination and again contamination. All measures taken over many years, based on visual, hand picking of foreign matters in the cotton 'have led to a dead-end' and the problem was not alleviated by one iota. Claims were waived or disregarded over the same lengthy period. With the re-introduction of the private sector, foreign buyers of Egyptian cotton expect from the authority to admit the failure of previous measures adopted hitherto, and expect the elimination of contamination by modern technological means, now available in the markets. Ways and means to do it can be discussed more in detail in "The Study for Grading & Quality of Egyptian Cotton". Spinners expect Egypt to solve the problems of foreign matter and to prevent quality deterioration."

ANNEX V: SYMBOLS USED BY CATGO COTTON CLASSERS

ANNEX V: SYMBOLS USED BY CATGO COTTON CLASSERS

| Seed cotton grade | Lint cotton grade | Symbol |
|-------------------|-------------------|-------------|
| FG - 1/4 | FG | /// |
| | FG-1/8 | <u>///</u> |
| G/FG | FG-1/4 | //// |
| | FG-3/8 | <u>////</u> |
| G + 1/4 | G/FG | X |
| | G+3/8 | <u>X</u> |
| G | G+1/4 | XX |
| | G+1/8 | <u>XX</u> |
| G-1/4 | G | XXX |
| | G-1/8 | O |
| FGF/G | G-1/4 | <u>Q</u> |
| FGF | FGF/G | OO |
| GF/FGF | FGF | <u>QQ</u> |
| GF | GF/FGF | OOO |
| FF/GF | GF | <u>QQQ</u> |
| FF | FF/GF | OOOO |
| | FF | S |

FG= Fully Good

G/FG= Good Fully Good

G= Good

FGF =Fully Good Fair

FGF/G= Fully Good Fair to Good

GF/FGF= Good Fair to Fully Good Fair

FF/GF= Fully Fair to Good Fair

FF= Fully Fair

ANNEX VI: CATGO FEES

ANNEX VI: CATGO FEES

Fees for CATGO Services on Cotton, Season 1998/99

| | | | |
|-----|--|-------|--------------------|
| 1. | Grading of seed cotton at the PBDAC sales rings | 0.90 | LE/Kentar |
| | at the gin | 1.70 | LE/Kentar |
| | at a private sales ring | 3.40 | LE/Kentar |
| 2) | Grading of lint cotton + outturn | 1.40 | LE/Kentar |
| 3) | Incentives for graders | 0.05 | LE/Kentar |
| 4) | Marking of hydraulic bales | 1.35 | LE/Bale |
| 5) | Marking steam press bales | 1.35 | LE/Bale |
| 6) | Arbitration (inside Alexandria) | 27.05 | LE/Lot |
| 7) | Arbitration (outside Alexandria) | 27.05 | LE/Lot |
| 8) | Appeal (inside Alexandria) | 36.55 | LE/Lot |
| 9) | Appeal (outside Alexandria) | 36.53 | LE/Lot |
| 10) | Super appeal | 87.35 | LE/Lot |
| 11) | Transportation of samples inside Alexandria | 1.70 | LE/bundle |
| 12) | Transportation of samples outside Alexandria | 2.45 | LE/bundle |
| 13) | Fees of standard types experts | 0.10 | LE/Bale |
| 14) | Fees of list experts | 1.70 | LE/Lot |
| 15) | Fees for CATGO arbitration certificate | 3.25 | LE/Lot/Certificate |
| 16) | Humidity testing (inside Alexandria) | 22.20 | LE/Sample |
| 17) | Humidity testing (outside Alexandria) | 22.20 | LE/Sample |
| 18) | Humidity testing for export | 23.85 | LE/Sample |
| 19) | Transportation of samples inside Alexandria | 1.70 | LE/Sample |
| 20) | Transportation of samples outside Alexandria | 2.45 | LE/Sample |
| 21) | Supervision of weighing (steam press bales) | 11.15 | LE/Sample |
| 22) | Drawing of steam press bale samples | 8.00 | LE/Sample |
| 23) | Drawing of additional samples in Alexandria | 20.80 | LE/Sample |
| 24) | Drawing of additional samples outside Alexandria | 27.05 | LE/Sample |
| 25) | Spinning & HVI test | 8.00 | LE/Sample |
| 26) | Internal grading wage training | 0.05 | LE/Lint kentar |
| 27) | Charges on scarto | 0.45 | LE/Scarto kentar |
| 28) | Surveyor fees | 79.45 | LE/incident |
| 29) | Pricing of salvage cotton | 1.70 | LE/Kentar |
| 30) | Determining the variety | 2.45 | LE/Kentar |
| 31) | Overtime | 8.00 | LE/Hour |
| 32) | Seed cotton ginned for seeds | 0.10 | LE/Ardeb |
| 33) | Expenses for errands (statute) | | |
| 34) | Storing of samples | 1.70 | LE/bundle/Day |

Notes :

- * Average bale weight = 7 kentars.
- * Average number of bales in lot = 20 bales.
- * Sample = 10% of every lot.

* One bundle represents one lot.

One ardeb of cotton seed = 120 kg.

ANNEX VII: GRADING SYSTEMS FOR EXTRA LONG STAPLE COTTON

ANNEX VII: GRADING SYSTEMS FOR EXTRA LONG STAPLE COTTON

INTRODUCTION GRADE & QUALITY

In order to set the price of any given lot of cotton, the cotton must be graded. Grading cotton is the art of assessing the quality under the following aspects:

Grade:

Refers to color, cleanliness and style: i.e., visible factors. The color may be bright white, dead white, spotted or gray. "Bloom" is especially present in ELS cotton.

Cleanliness:

Refers to the amount of leaf (trash) in the cotton. The quantity of leaf may be large or small and peppery. Preparation is near perfect when the surface of the sample is smooth. Ginning is responsible for the presence of knots and tangled fibers, which make it difficult to dye.

Staple:

Concerning the length of fibers, i.e., 1-7 / 16" or 1-3 / 8", for Pima, 35 mm- for Egyptian.

Pulling the staple will reveal the character of the cotton, including the degree of silkiness of the fiber, its fineness or coarseness, strength or weakness, even running in length, or irregular and wasty.

Fine spinners must regularly invest heavily in new, high-speed machinery. The necessity gradually arose to complete the manual classing by mechanical testing, mainly with the HVI system, which produces test results of the main parameters. Fine cotton processing also requires test results for the AFIS fiber test system to determine the content of short fibers and neps.

What does quality mean to your client spinners ,

- Quality means a cotton free of contamination by foreign matter. Spinners consider that elimination of contamination should be done at the origin.
- Even running lots that made the reputation of Egypt. Shipment to correspond in grade and staple to sale type, with ancillary parameter values. HVI- to be promoted on the export front.

US Pima

Grading & Quality

Description of types

| Type | Designation | Staple Range | Micronaire |
|--------------------|-------------|--------------------|-----------------|
| San Joaquin Valley | Grade | 1- 3 / 8" -1-7 /16 | basis 3.5 - 4.5 |
| | 01 | | |
| | 02 | | |
| | 03 | | |
| | 04 | | |
| | 05 | | |
| | 06 | | |

| Type | Designation | Staple Range | Micronaire |
|--------------|-------------|--------------------|-----------------|
| Desert South | Grade | 1- 3 / 8" -1-7 /16 | basis 3.5 - 4.5 |
| | 01 | | |
| | 02 | | |
| | 03 | | |
| | 04 | | |
| | 05 | | |
| | 06 | | |

| <u>Micronaire</u> | <u>Discount</u> |
|-------------------|-----------------|
| 2.6 or lower | - 2300 |
| 2.7 - 2.9 | - 1800 |
| 3.0 - 3.2 | - 1350 |
| 3.3 - 3.4 | - 500 |
| Basis 3.5 – 4.5 | |

Fiber characteristics

1-3/8" and 1-7/16"
Average Micronaire 3.5 - 4.5
Breaking strength 105,000 PSI

Growing areas San Joaquin Valley, mostly for export. Desert Southwest: Arizona, New Mexico, Texas

Seed cotton is not graded in the U.S. Gins try to gin only one specific farmer's cotton at a time. Farmers will have cotton ginned field by field, and module by module so the grade within the seed cotton ginned really is quite homogeneous. Farmers do not have cotton sitting for inordinate periods

of time in modules. Generally there are 2 samples drawn, one goes to the USDA and the other goes with the bale to the final buyer.

The US classes virtually every bale in the US with exception of the Boswell farmers. California cotton is classed in Visalia. Arizona cotton is classed in Phoenix. Each bale is HVI tested. Bales are directly loaded on flat bed trucks and moved either to an interior warehouse, or to a port warehouse. Damage is seldom seen in US Pima.

ISRAEL Pima

Grading & Quality

Description of types

| Designation | Staple Range |
|--------------------|---------------------|
| H 1 | 1-7/16" |
| H 2 | 1-3/8 " |
| M 1 | 1-7/16" |
| M 2 | 1-3/8" |
| L 1 | 1-3/8" - 1-7/16" |

Fiber characteristics

1-3 / 8" (34,5mm) 1-7/16" (36,0 mm)
Average Micronaire 3.8 (3.5 - 4.1)
Breaking strength PSI 100,000 minimum

| | |
|--------------------------|---|
| Growing areas | Upper Galilee, Jordan Valley, Gilboa plains |
| Classing units | Israel considers the modules as classing units. They combine HVI with manual classing. The manual classing serves the purpose of giving additional information about factors not tested by HVI, such as the nature of foreign matters, and the effect of ginning on fibers. |
| Modules- as units | The module is a ginning unit in which all bales are similar. A module of seed cotton weighs about 8,000 KG from which they gin 12 uniform lint cotton bales. |

A module is built in the field in horizontal layers and fed into the gin in vertical layers to ensure the homogeneity of the 12 bales.

Israel Pima cotton is often spun into sewing thread, in the counts Ne 40/1 or Ne 60/3 with a breaking strength of 19 - 20 RKM, or it is blended with polyester.

Seed cotton is not graded.

Central Asia CIS

Grading and Quality

Description of types

Russian Designation

| | |
|----|------------|
| 01 | Pervyi |
| 02 | Vtoroyi |
| 03 | Tretyi |
| 04 | Chetvertyi |
| 05 | Piatyi |

Turkmenic Designation

| |
|----------|
| Birinch |
| Ikkinchi |
| Uchin |
| Turtin |
| Besinch |

In addition, as other countries may have a subdivision into 1/4 or 1/8th of grade, CIS countries have a subdivision of five fractions of a grade namely:

Fractions of a grade:

| | |
|--------|-----------------------|
| OLIY | denoting a full grade |
| YAKSHI | grade plus |
| URTA | plain grade |
| ODDIY | slightly shy |
| IFLOS | barely type |

These sub-grades apply to all grades 01, 02, 03 etc... The staple of CIS ELS cotton decreases in length as the grade goes down the scale.

A Pervyi can staple 38 / 40 mm, a Vtoroyi 36 / 38mm a Tretyi 34 / 36 mm etc.
Micronaire is between 3.3 and 4.1

Growing areas: Uzbekistan, Tadjikistan, Turkmenistan

Ginning

After defoliation, the cotton is harvested by mechanical harvesters using a suction system. Seed cotton is dark brown, full of leaf, earth, sand and must be cleaned by a series of cleaning units, up to 7. The result is a cotton with a pronounced twist in its fibers. Generally, experienced mills concentrate only on of Pervyi 38 / 40 mm and have to implement a number of measures to avoid cutting the fiber, by reducing appreciably the speed of the cards, for one. Generally Japanese and European buyers abstain from going any lower than Pervyi. This cotton may have had the interest of mills when sold at a large discount, to lower price-wise the average blend at the mill.

E g y p t

Grading and Quality

Description of types:

| | |
|--------------|------------------------|
| FG | Fully Good |
| FG- 1 / 8 | Fully Good minus 1 / 8 |
| FG- 1 / 4 | Fully Good minus 1 / 4 |
| FG- 3 / 8 | Fully Good minus 3 / 8 |
| G / FG | Good to Fully Good |
| Good + 3 / 8 | Good + 3 / 8 |
| G + 1 / 4 | Good + 1 / 4 |

This same grading system applies to all varieties: Giza 45, Giza 87 Giza 76, Giza 70, Giza 77, Giza 86, Giza 89, Giza 75, Giza 85, Giza 80 and Giza 83. All governorates in the Nile valley and Delta produce cotton except for the two most southern governorates in Upper Egypt. ELS varieties are planted exclusively in the Delta.

CATGO has the duty to grade the seed cotton that is delivered at the rings in the interior, so that farmers can be paid. CATGO also grades the lint cotton after ginning, samples of which are also passed through the HVI unit at Smouha.

Egyptian cotton being hand picked, is also contaminated by foreign matter. A first contamination happens in the field at time of picking, a second from farm to ring to gin, a third one is unavoidable at the gin itself. Since every handling of the cotton is liable to add to its contamination, blending at Alexandria may also contribute to this calamity. Optical scanners can, to a large extent, remedy this situation, but none have been implemented yet. To rely on hand picking of foreign matter is an unreliable method that has not and cannot give any acceptable results.

The ginning system is slow and costly, but preserves all the spinnability of Egyptian cotton, with its reciprocating knives and leather clad roller. Testing of all lots produced in Egypt, which may not exceed 40,000 lots, on the HVI system should be encouraged. The two units available are more than a match for the volume of the crop. The data thus obtained, from gin to gin, from area to area, should serve the purpose of checking the qualitative outturn, as well as the competency of CATGO classers in every gin.

Also, export lots should be HVI tested as a service to the client, even if it is only on an informative base and not entered formally into the contract. Taking into account the large number of Egyptian cotton varieties, I would refer to the CATGO technical sheet which gives the parameters of each single variety.

The Sudan

Grading and Quality

Description of types Sudan Barakat

| | | |
|---------|---|--------|
| | | GB |
| 1-3/8" | + | XG 2 B |
| | | G2B |
| | | XG3B |
| | | G3B |
| 1-5/16 | | XG4B |
| | | G4B |
| | | XG5B |
| | | G5B |
| 1-1/4" | | XG6B |
| | | G6B |
| | | CG6B |
| 1-3/16" | | DG6B |

The grades of Sudan Barakat cotton have the peculiarity of having a shorter staple as one goes down the grade scale. Grades GB, XG2B and G2B are often blended with Egyptian ELS. Grades XG3B and 3B are blended with Egyptian LS varieties. This blending exercise lowers the average yarn cost since Sudan Barakat always sells at a discount.

Fiber characteristics

| | |
|-----------------------|-----------------|
| Staple Length 2.5 % | 31.5 – 34. 5 mm |
| Micronaire | 3.4 - 4.1 |
| Bundle strength g/tex | 26 - 30 |

The main problem in the Sudan is in the stickiness of the cotton caused by the Aphis and White Fly (Honeydew).

Growing areas: mostly in the Gezira between the White and Blue Nile, the Managil extension, the private schemes on the White Nile and sporadically in the inland Tokar Delta.

Production of ELS Barakat used to reach one million bales, but stickiness destroys the value of its cotton, and production has thus declined by more than 50 percent..

Ginning is carried out on roller, reciprocating knife gins, as in Egypt, therefore it can be deduced that the spinnability of Sudan Barakat is fully preserved if honeydew is excluded. The whole crop is handpicked and contamination by polypropylene is its worse problem. This contamination takes place in the field at time of picking.

Peru

Grading and Quality

Description of grades

| | Seed cotton | Lint cotton |
|----------------------|--------------------|------------------------------|
| Peruvian pima | Superior | Grade one |
| | Medio | Grade one and a quarter |
| | Inferior | Grade one and half |
| | | Grade one and three quarters |

Description of staple

| | |
|---------------|-----------|
| Peruvian pima | 1-5 / 8" |
| | 1-9 / 16" |
| | 1-1 / 2" |

All Peruvian pima is picked by hand. Farmers have small land holdings of a few hectares and they pick their own cotton and store it, usually in their homes. Seed cotton is separated and classed at the gins using the 3 main grades listed above. Once the cotton is ginned, a sample is cut and cotton is classed promptly. The bale is typically stored under a warehouse roof at the gin. Cotton is classed by an employee of the gin, and not by any government classer. There are no HVI tests carried out on Peruvian Pima.

Many bales are stored in the open since rainfall is almost non-existent during the harvest period in Northern Peru. Ginning is carried out on roller gins, which fully preserve the spinnability of Peruvian Pima.

As this cotton is hand picked it also has a history of contamination by foreign matter, which is far from desirable to the foreign mills and complicates its use abroad.

India

Grading and Quality

Description of types

| | Designation Grade | Staple Range | Micronaire |
|-----------------------|----------------------|--------------|------------|
| Suin | Superfine | 36 – 38 mm | 2.7 – 3.0 |
| G. Barbadense | Fine Fully Good | | |
| DCH-32 | Superfine | 33 – 37 mm | |
| Hirsutum x barbadense | Fine Fully Good | | |

Fiber characteristics

Suin 36 – 38 mm
Micronaire 2.7 - 3.0
Spinning potential Ne 100 – Ne 120
DCH-32 33 – 37 mm
Spinning potential Ne 60 – Ne 90

Growing areas:

Suin Tamil Nadu, Andhra Pradesh
DCH 32 Karnataka, Andhra Pradesh, Tamil Nadu, Gujarat

Most of these cottons are consumed by Indian domestic mills. Occasionally a small lot of Suin finds its way to Japan where it is blended with Egyptian Giza 45. In most years India is a net importer of some Egyptian cotton.

For those countries that do not supply grade standards, the Liverpool Cotton Association(LCA) will assist their members in grading if there is a sufficient volume of cotton.

THE LCA HAS OFFICIAL STANDARDS FOR THE FOLLOWING ELS ORIGINS.

| | |
|---------------|-------------------------|
| AMERICAN PIMA | GRADES 1, 2, 3, 4, 5, 6 |
|---------------|-------------------------|

| | |
|-----------------|---------------------------|
| INDIAN DCH - 32 | SUPERFINE FINE FULLY GOOD |
|-----------------|---------------------------|

| | |
|-------------------------|------------------------------|
| PERUVIAN PIMA BLANCO | EXTRA, 1, 1 1/4 1 1/2, 1 3/4 |
|-------------------------|------------------------------|

| | |
|---------------|-----------------------------|
| SUDAN BARAKAT | GB G2B G3B G4B G5B G6B CG6B |
|---------------|-----------------------------|